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Dry Kiln Schedules for Commercial Woods

Temperate and Tropical

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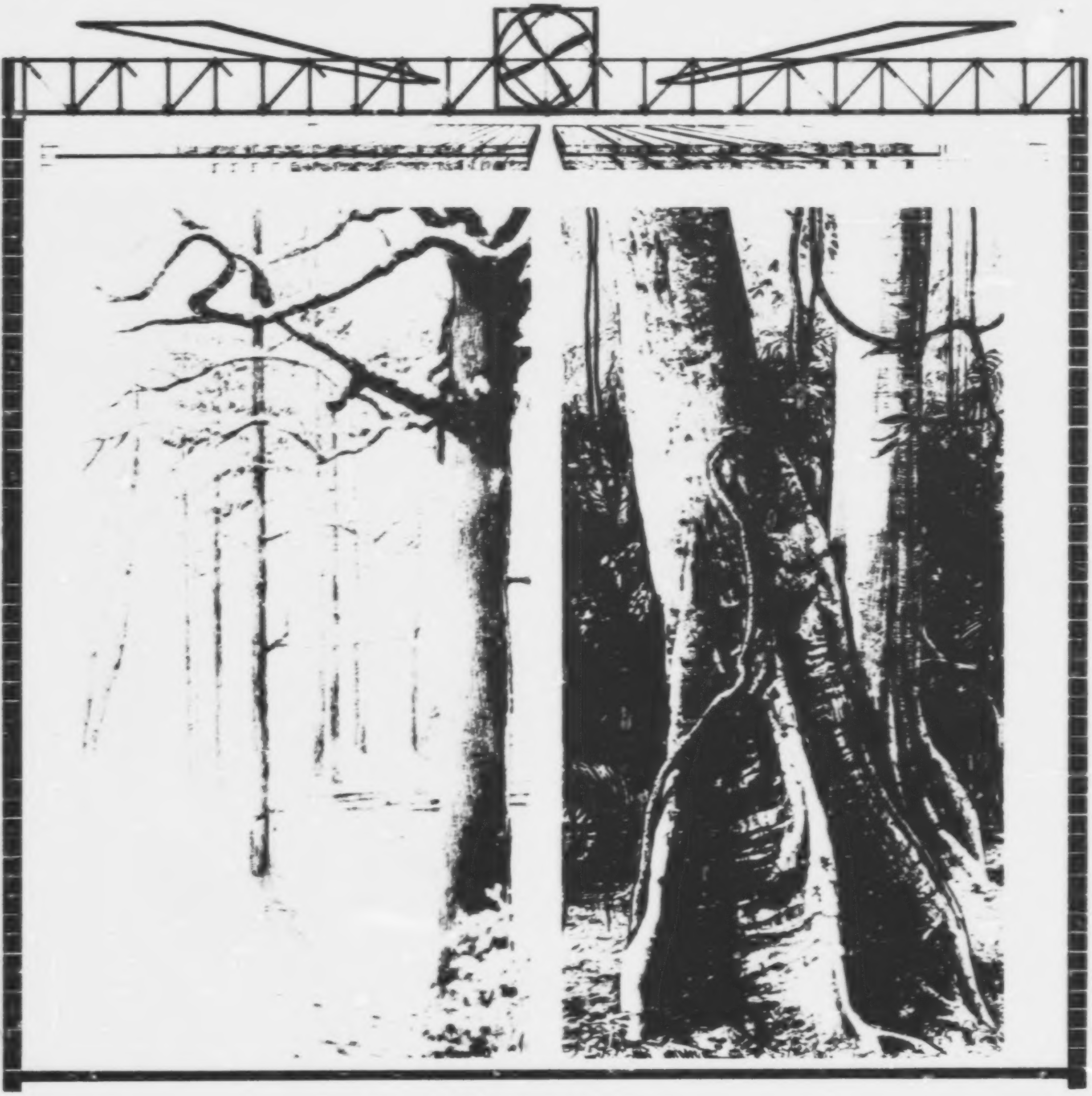

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Abstract

This report contains suggested dry kiln schedules for over 500 commercial woods, both temperate and tropical. Kiln schedules are completely assembled and written out for easy use. Schedules for several thicknesses and specialty products (e.g. squares, handle stock, gunstock blanks) are given for many species. The majority of the schedules are from the world literature, with emphasis on U.S., Canadian, and British publications. Revised schedules have been suggested for western U.S. and Canadian softwoods and for the U.S. southern pines. Current thinking on high-temperature drying (temperatures exceeding 212 °F) schedules for both softwoods and hardwoods is reflected in suggested high-temperature schedules for selected species.

Keywords: Lumber drying, hardwoods, softwoods, kiln drying, conventional-temperature (≤ 180 °F) schedules, elevated-temperature (180-212 °F) schedules, high-temperature (≥ 212 °F) schedules, tropical woods, temperate woods.

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Contents

Page

- Introduction 1
  - Purpose 1
  - How to Use This Publication 2
  - Use of Schedules for Other Than Steam-Heated Kilns 4
- Section I. U.S. and Canadian Species—Conventional and Elevated Temperatures 5
  - Hardwoods 5
    - *Specific Procedure for Air-Dried Stock* 5
    - *Specific Procedure for Partly Air-Dried Stock* 6
    - *Suggested Procedure for Frozen or Snow-Covered Hardwood Lumber* 6
  - Softwoods (Conifers) 6
    - *Suggested Procedure for Frozen or Snow-Covered Softwood Lumber* 6
  - Index of Schedules for Hardwood Species 7
  - Index of Schedules for Softwood Species 12
    - A. Moisture Content-Controlled Schedules 12
    - B. Time-Controlled Schedules 14
- Section II. U.S. and Canadian Species—High Temperatures 17
  - Index of Schedules for Softwood Species 18
  - Index of Schedules for Hardwood Species 19
- Section III. Latin American (Mexico, Central, and South America) Woods—Conventional Temperatures 21
  - Index of Schedules 22
- Section IV. Asian and Oceanian Woods—Conventional and Elevated Temperatures 25
  - Index of Schedules 26
- Section V. African Woods—Conventional and Elevated Temperatures 31
  - Index of Schedules 32
- Section VI. European Woods—Conventional and Elevated Temperatures 35
  - Index of Schedules 36
- Section VII. Tables of Assembled Dry Kiln Schedules 37
  - Conventional and Elevated Temperature Schedules: Hardwoods (Tables 1-123) 37
  - Conventional and Elevated Temperature Schedules: Softwoods (Tables 200-316) 80
  - High-Temperature Schedules: Hardwoods and Softwoods (Tables 400-420) 120
  - Miscellaneous Schedules (Tables 500-517) 127
- Appendix A. Equalizing and Conditioning Treatments 134
- Appendix B. Sample Board Method 136
- Appendix C. Common Trade and Botanical Names for Woods NATIVE to the United States and Canada 137
- Appendix D. Common Trade and Botanical Names for Woods NOT NATIVE to the United States and Canada 143
- Appendix E. Assembled British Standard Kiln-Drying Schedules 157
- Appendix F. References and Related Literature 158

U.S. and Canada Conventional and Elevated Temperatures

U.S. and Canada High Temperatures

Latin America

Asia and Oceania

Africa

Europe

Dry Kiln Schedules for Commercial Woods

Temperate and Tropical

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Introduction

Purpose

This publication contains suggested dry kiln schedules for most commercial woods of the world. The purpose of this publication is to make available to dry kiln operators and others interested in kiln-drying wood, kiln schedules that are completely assembled and written out for ready reference and easy use.

In the majority of cases, the drying schedules are from the world literature, with emphasis on U.S., Canadian, and British publications. They are brought together in this volume for easy reference and use. Schedules for stock thicker than 8/4[1] (2 in or 50 mm) are given for many species. Schedules for products other than lumber, e.g. squares, handle stock, gunstock blanks, are listed when they are known and have achieved widespread acceptance in the industry.

In some cases, revised schedules have been suggested, updating the information in U.S. Department of Agriculture Handbook No. 188, Dry Kiln Operator's Manual.[2] These occur mostly in the schedules for western U.S. and Canadian softwoods and the U.S. southern pines. Current thinking on high-temperature drying (temperatures exceeding 212 °F) schedules of both softwoods and hardwoods is reflected in suggested high-temperature schedules for selected species.

A reasonable level of experience in kiln operation is necessary to make use of these suggested schedules, which are intended only as general guidelines. They may require fine tuning depending on the differences in kilns and with wood property variations within a species. It is also assumed that equipment is properly designed and is operated per manufacturers' directions. For those needing a refresher in principles and operation of dry kilns, other books cover that subject well (see app. F, page 158).

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[1] It is common in some markets to designate lumber thickness by quarter inches, e.g. 4/4 = 1 inch, 6/4 = 1-1/2 inches, 8/4 = 2 inches.

[2] Rasmussen, E. F. 1961. Dry kiln operator's manual. Agric. Handb. 188. Washington, DC: U.S. Department of Agriculture, Forest Service. 197 p. illus.

Knowledge of the proper use of sample boards for monitoring the drying rate when using MC-controlled schedules is assumed (see app. B, page 136 for a brief summary of this procedure). These schedules are suggested primarily for steam-heated kilns where wet-bulb temperature or relative humidities can be controlled rather precisely, although schedules for direct-fired high-temperature drying of the southern pines are listed. Air speeds through the load (measured on the leaving air side) should be 300 to 400 feet per minute for hardwoods when using a conventional schedule; 500 feet per minute minimum for softwoods when using a conventional schedule; and 700 feet per minute minimum for softwoods using elevated temperature schedules. For high-temperature schedules, air speeds of 800 to 1,500 feet per minute are commonly used.

For certain applications or products, many consider the task of kiln drying not completed until the lumber has had the drying stresses relieved. Therefore, a brief discussion of equalizing and conditioning treatments is found in appendix A, page 134.

How to Use This Publication

Commercial woods (species) in this publication are divided into groups by geographic source of origin: United States and Canada; Latin America (Mexico, Central and South America); Asia and Oceania; Africa; and Europe. Species names are listed alphabetically by common name[3] in the Index of Schedules for the U.S. and Canadian sections. A cross-referenced common name-botanical name listing for U.S. and Canadian woods can be found in appendix C, page 137.

Because of the many and varied common or commercial names given to individual wood in the non-native U.S. and Canada species, these woods are listed alphabetically by botanical name in the Index of Schedules within their geographic section. A listing of common trade names for these woods is given in appendix D, page 143.

The U.S./Canadian woods are divided into two major groups in the schedule index: (1) those to be dried using conventional temperature (max DB temp. ≤180 °F) schedules or elevated temperature (max. DB temp. 180-212 °F) schedules (Section I), and (2) those dried with high-temperature (max. DB temp. > 212 °F) schedules (Section II). This first group is further divided into hardwood species and softwood (coniferous) species. Within the softwood group there is a further division of MC-controlled schedules and time-controlled schedules.

All schedules in the high-temperature schedules index are time-controlled schedules.

The following are some examples of how to use this publication:

Example 1: To find the conventional temperature schedule for 4/4 yellow birch:

Step 1—Look in the Index of Schedules for Kiln-Drying U.S. and Canadian Hardwood Species at Conventional and Elevated Temperatures (Section I, page 7). Find "birch, yellow (*Betula alleghaniensis*)."

Step 2—Note in the first column under 4/4, 5/4, 6/4 stock, the listing "75 (T8-C4)."

Step 3—Turn to Section VII, "Table 75 (T8-C4)," page 62. Moisture content schedule T8-C4 is completely printed out. Equalizing and/or conditioning treatments may be added. Dry-bulb and wet-bulb settings for these treatments will be determined by predetermined final target MC of stock, see appendix A, page 134.

Step 4—If the average MC of your stock is above 40 percent, start at the first step; if average is at a lower MC, enter schedule at appropriate step corresponding to that average MC, using appropriate precautions suggested on p. 5, Specific Procedure for Air-Dried Stock.

Example 2: To find the schedule for 8/4 eastern white pine for use as furniture stock:

Step 1—As furniture stock requires close control of final MC, look in the Index of Schedules for Kiln-Drying U.S. and Canadian Softwood Species at Conventional Temperatures—A. Moisture Content-Controlled Schedules, page 12. Find "pine, eastern white (*Pinus strobus*)."

Step 2—Note in the column under 8/4 stock, the listing "244 (T10-C4)" for the standard schedule and "277" for the antibrown stain schedule.

Step 3—Turn to Section VII, page 95, table 244 (T10-C4S), or table 277, page 106. There you will find both MC softwood schedules, completely printed out. Choose between the two to fit your processing and/or end-product requirements. Equalizing and/or conditioning treatments may be added, see appendix A, page 134.

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[3] Following nomenclature of E. L. Little, Jr. 1979. Checklist of United States trees. Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service. 375 p.

Step 4—Enter or start the schedule at the level of the average MC of your stock.

Example 3: To find a time-controlled schedule for 8/4 shop grade Douglas-fir:

Step 1—Look in the Index of Schedules for Kiln-Drying U.S. and Canadian Softwood Species at Conventional Temperatures—B. Time Controlled Schedules, page 14. Find "Douglas-fir (*Pseudotsuga menziesii*)."

Step 2—Note the need to choose between "lower grades" and "upper grades." Shop grade is considered an "upper grade"—so find the listing "294^{d}" under upper grades, 8/4 stock.

Step 3—Note the "d" superscript on the table number and look under comments to find that you should omit step 1 when drying vertical grain stock.

Step 4—Turn to Section VII, table 294, page 111. There you will find the time-controlled schedule completely written out.

Example 4: To find the suggested schedule for 4/4 yellow-poplar when you have the capability of using conventional temperature or high temperature:

Step 1—Look in the Index of Schedules for Kiln-Drying U.S. and Canadian Species at Conventional and Elevated Temperatures, page 11. Find "yellow-poplar (*Liriodendron tulipifera*)."

Step 2—Note in the first column the listing "103 (T11-D4)."

Step 3—Look under Index of Schedules for Kiln-Drying U.S. and Canadian Woods at High Temperatures (>212 °F)—Hardwoods, page 19. Find the listing for yellow-poplar "419."

Step 4—Turn to Section VII to either or both schedule(s) and choose between the two to fit your processing schedule and/or end-product requirements.

Example 5: To find the schedule for 4/4 teak:

Step 1—If you do not know the botanical name of teak, look in appendix D, page 143—Common Trade and Botanical Names for Woods NOT NATIVE to the United States and Canada. Find "teak" and its botanical name and note that it is in the Schedule Index for Asia and Oceania. If you know that this is a wood from Southeast Asia and the botanical name is *Tectona grandis*, look at the Index for Schedules of Kiln-Drying Asian and Oceanian Woods and find *Tectona grandis*.

Step 2—Turning to the Schedule Index for Asia, page 28, find "*Tectona grandis*" and note that the listing under U.S. Schedule 4/4 stock is "245 (T10-D4S)." Also note there is a listing under British schedule, "H." If the U.S. schedule is preferred, turn to Section VII, page 95; for the British schedule, turn to appendix E, page 157.

Step 3—In either Section VII, table 245 (T10-D4S), or in appendix E, British schedule H, you will find the complete schedule printed out. Equalizing and conditioning treatments may be added as needed; see appendix A, page 134.

Use of Schedules for Other Than Steam-Heated Kilns

As mentioned earlier, most of these schedules are suggested for use with steam-heated kilns where both temperature and humidity are closely controlled. This is a very common type of lumber dry kiln currently being used in the United States and Canada and will continue to dominate these markets for years to come. Other drying systems are available and enjoy varying degrees of success in the United States and Canadian markets.

The more common systems include:

(1) Direct-fired kilns—used mainly in drying softwood dimension lumber for construction uses; limited humidity control; temperatures usually above 212 °F. A few schedules have been suggested for drying selected southern pine products in direct-fired kilns. It is unlikely that the steam-heated kiln schedules can be adapted to direct-fired kilns where precise control of the relative humidity or wet-bulb temperature is limited or not possible.

(2) Dehumidification kilns—currently being used primarily in drying hardwood lumber, but use in drying softwood dimension lumber is growing. Temperatures are frequently lower than steam-heated kilns. The majority of the suggested schedules for steam kilns are adaptable for use with the dehumidification kilns. A frequently recommended practice is to start at a lower dry-bulb temperature but maintain the same equilibrium moisture content (EMC) and relative humidity (RH) for the various steps. We believe this procedure is adequate to develop an initial kiln schedule, with modifications then made based on the drying results.

(3) Miscellaneous drying systems—include various types of vacuum dryers. Energy is transferred to the wood by several methods including radio-frequency (RF), hot air, heated platens, or electric blankets. At this time, we cannot comment on the usefulness of these schedules to the vacuum or RF vacuum-drying systems.

Section I.
U.S. and Canadian Species—Conventional and Elevated Temperatures

Hardwoods

Shown in this section are schedules for steam-heated kilns operated at temperatures between 100 and 180 °F[4] (38 and 82 °C). Suggested schedules are essentially the same as those listed in U.S. Department of Agriculture Handbook 188, Dry Kiln Operator's Manual. In general, these schedules call for changes in kiln conditions to be made on the basis of the average MC of the wood. The use of sample boards is required. (See appendix B, page 136 for a brief summary of a method for obtaining sample boards.) For some western hardwood species time schedules are also listed. Suggested schedules for products other than lumber, e.g. squares, handle blanks, etc., are listed under "other products." For squares of species with no specific listing, use a wet-bulb depression number one unit higher than the one suggested for lumber of the same thickness. Thus, for 3- by 3-inch yellow birch squares, use T3-B3, rather than T3-B2 listed for 12/4 lumber. Assembled schedules can be found in Section VII.

Schedules are intended for kiln drying from the green condition or when stock has been partly or well air-dried. These schedules are recommended starting points, and the prudent kiln operator will modify these schedules to accommodate regional species characteristics. For example, in the northeastern United States, kiln operators have modified schedules for hard maple, oak, and eastern white pine to accommodate the drying requirements and smaller diameters of trees being harvested. These schedules are listed in the Index to Schedules under the comments section for the selected species.

Specific procedures for starting up the kiln and the first day or two of the run when drying air-dried or partly air-dried stock are given below.

Specific Procedure for Air-Dried Stock

(Average MC should be 25 pct or lower, with no material over 30 pct.)

4/4, 5/4, Most 6/4

(1) Bring dry-bulb temperature up to the value prescribed by schedule for the average MC of the controlling kiln samples. Maintain conditions during warming so that EMC does not exceed initial wet- and dry-bulb settings.

(2) After prescribed dry-bulb temperature has been reached:

(a) If the air-dried stock had not undergone surface wetting or been exposed for a considerable period to high RH just before it was placed in the kiln, set the wet-bulb controller at the prescribed wet-bulb temperature. Turn on the steam spray only if necessary to start equalizing.

(b) If there has been surface moisture regain or if dried in a predryer above 75 percent RH, set the wet-bulb controller for a 10 °F wet-bulb depression and turn on the steam spray. Let the kiln run 12 to 18 hours at this wet-bulb setting, then change to the dry- and wet-bulb settings prescribed by the schedule.

8/4 (Plus 6/4 Oak)

(1) Bring dry-bulb temperature up to the value prescribed by the schedule for the average MC of the controlling kiln samples, keeping the vents closed. Use steam spray only as needed to keep wet-bulb depression from exceeding 12 °F.

(2) After prescribed dry-bulb temperature has been reached:

(a) If there has been no surface moisture regain, set the wet- bulb controller at the prescribed wet-bulb temperature. Turn on the steam spray only if necessary.

(b) If there has been surface moisture regain or if dried in a predryer above 75 percent RH, set the wet-bulb controller for an 8 °F wet-bulb depression and turn on the steam spray. Let the kiln run 18 to 24 hours at this setting. Then set for a 12 °F depression and run for 18 to 24 hours more before changing to the conditions prescribed by the schedule.

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[4] A few schedules have maximum dry-bulb temperatures of 200 °F (93.5 °C).

Specific Procedure for Partly Air-Dried Stock

(No material should be over 50 pct MC.)

4/4, 5/4, Most 6/4
(1) Bring dry-bulb temperature up to the value prescribed by the schedule for the average MC of the controlling kiln samples. Keep the vents closed. Use steam spray only as needed to keep wet-bulb depression from exceeding 10 °F. However, do not allow the depression to become less than 5 °F or moisture will condense on the lumber.

(2) After the prescribed dry-bulb temperature has been reached, run a minimum of 12 hours on each of the first three wet-bulb depression steps of the whole schedule, but still observe the 5 °F minimum wet-bulb depression. Then change to the conditions prescribed for the MC of the controlling samples.

8/4 (Plus 6/4 Oak)
(1) Bring dry-bulb temperature up to the value prescribed by the schedule for the average MC of the controlling kiln samples. Keep the vents closed. Use steam spray only as needed to keep wet-bulb depression from exceeding 8 °F. However, do not allow depression to become less than 5 °F.

(2) After the prescribed dry-bulb temperature has been reached, run a minimum of 18 hours on each of the first three wet-bulb depression steps of the schedule, but still observe the 5 °F minimum wet-bulb depression. When the kiln conditions coincide with those prescribed by the schedule for the average MC of the controlling samples, change to the MC basis of operation.

Suggested Procedure for Frozen or Snow-Covered Hardwood Lumber

During winter in the colder regions, a kiln operator may find it necessary to load a kiln with frozen lumber or lumber with an appreciable cover of snow and/or ice. While many operators go directly to the indicated step in the schedule, others use the following practice: Warm the lumber for 12 to 24 hours with dry-bulb temperatures of 80 to 90 °F and a wet-bulb depression of about 5 °F; operate vents as needed but turn off steam spray. After this warming period, refer to the preceding section on procedures for air-dried or partly air-dried stock with surface moisture regain.

Softwoods (Conifers)

This section lists schedules for drying softwood (coniferous) species in steam-heated kilns and direct-fired kilns operated at temperatures between 90 and 200 °F. The suggested schedules are divided into two groups: (A) those where changes in schedule are based on MC of the wood, and (B) those where changes in schedule are based on time.

For products requiring very close control of final MC, such as furniture, millwork, and cabinet stock, better results may be obtained using the MC-controlled schedules. These are essentially the same as those listed in U.S. Department of Agriculture Handbook 188, Dry Kiln Operator's Manual. Use of sample boards is required. As mentioned in the previous section on hardwood, some schedule modification may be desirable to meet product requirements or changing timber resources. Modified schedules frequently used in the northeastern United States are listed in the Index to Schedules under Comments.

For the suggested schedules where the changes are made based on elapsed time in the kiln, considerable changes have been made from Agriculture Handbook 188. These time schedules are based on drying from the green condition unless otherwise noted. When drying partly air-dried or partly kiln-dried western softwood stock, choose the appropriate schedule from the Index, but use a 10 °F wet-bulb depression for about 10 hours prior to entering the proper step of the schedule.

We feel these schedules are more appropriate for modern equipment and wood resource, should be more efficient, and require less kiln residence time.

Suggested Procedure for Frozen or Snow-Covered Softwood Lumber

Snow-covered or frozen softwood lumber requires a low-heat cycle prior to setting the drying schedule to prevent degrade in most species. General practice in the western United States is to turn off the spray line, with vents open and the heat on, for 8 to 18 hours depending on amount of snow or quantity of frozen lumber. The dry-bulb temperature should not exceed 100 to 105 °F. A frequently used practice in the northeastern United States is to run about 12 hours at 95 °F dry-bulb temperature with spray off and vents closed.

Index to Schedules for Kiln-Drying United States and Canadian Hardwood Species at Conventional and Elevated Temperatures
Entries are the table numbers in the publication for the schedule applicable to each species and thickness.

Common name (botanical name)	4/4, 5/4, 6/4 stock	8/4[1] stock	10/4[1] stock	12/4[1] stock	16/4[1] stock	Other products	Comments
	Table number (schedule code)[2]						
Alder, red (*Alnus rubra*)							Schedules also suggested in Western Canadian Manual (2).
standard	96 (T10-D4)	79 (T8-D3)	52 (T6-C3)	52 (T6-C3)	–		
for darker color	102 (T11-D3)	–	–	–	–		
for lighter color	46 (T5-D5)	–	–	–	–		
Time schedules for uniform color	286	289	288	288	–		For lower grades, use table 291 for 4/4-5/4, table 287 for 6/4, and table 289 for 8/4.
Apple (*Malus* spp.)	52 (T6-C3)	16 (T3-C2)	–	–	–		
Ash, black (*Fraxinus nigra*)	80 (T8-D4)	45 (T5-D3)	–	–	–		
Ash	71 (T8-B4)	36 (T5-B3)	36 (T5-B3)	13 (T3-B2)	9 (T3-A1)		Schedules also suggested in Eastern Canadian Manual (3).
blue (*Fraxinus quadrangulata*)							
green (*F. pennsylvanica*)							
Oregon (*F. latifolia*)							
white (*F. americana*)							
Time schedule for Oregon ash	287	288	288	288	–		For lower grades, use table 290 for 4/4 and table 289 for 6/4 and 8/4.
Aspen (*Populus grandidentata and P. tremuloides*)							Schedules also suggested in Canadian Manuals (2,3).
normal wood	106 (T12-E7)	99 (T10-E5)	84 (T8-E5)	84 (T8-E5)	66 (T7-C4)		
wet streak or collapse prone	109	110	–	–	–		
Basswood (*Tilia americana and T. heterophylla*)							
standard	106 (T12-E7)	96 (T10-E6)	–	–	–		Schedules also suggested in Western Canadian Manual (2).
for lighter color	91 (T9-E7)	69 (T7-E6)	–	–	–		
Beech (*Fagus grandifolia*)	73 (T8-C2)	39 (T5-C1)	–	–	–	1-inch squares 74 (T8-C3) 2-inch squares 40 (T5-C2)	Schedules also suggested in Eastern Canadian Manual (3). Refractory species; careful handling and drying required. End-coat squares and thick stock.
Birch	92 (T10-C4)	74 (T8-C3)	–	–	–	1-inch squares 93 (T10-C6) 2-inch squares 75 (T8-C4)	For whiter color in 1-inch squares use table 43 (T5-C6). For whiter color in 2-inch squares use table 42 (T5-C4).
paper (*Betula papyrifera*)							
grey (*B. populifolia*)							
river (*B. nigra*)							
sweet (*B. lenta*)							
Birch, yellow (*Betula alleghaniensis*)	75 (T8-C4)	41 (T5-C3)	36 (T5-B3)	13 (T3-B2)	9 (T3-A1)	1-inch squares 76 (T8-C5) 2-inch squares 42 (T5-C4)	Schedules also suggested in Eastern Canadian Manual (3).
Blackgum (*Nyssa sylvatica*)	105 (T12-E5)	102 (T11-D3)	102 (T11-D3)	88 (T9-C2)	64 (T7-C2)		
Boxelder (*Acer negundo*)	80 (T8-D4)	52 (T6-C3)	40 (T5-C2)				
Buckeye	100 (T10-F4)	86 (T8-F3)	–	–	–		
Ohio (*Aesculus glabra*)							
yellow (*A. octandra*)							

Index to Schedules for Kiln-Drying United States and Canadian Hardwood Species at Conventional and Elevated Temperatures—con. Entries are the table numbers in the publication for the schedule applicable to each species and thickness.

Common name (botanical name)	4/4, 5/4, 6/4 stock	8/4[1] stock	10/4[1] stock	12/4[1] stock	16/4[1] stock	Other products	Comments
	Table number (schedule code) [2]						
Butternut (*Juglans cinerea*)	98 (T10-E4)	83 (T8-E3)	—	—	—		
Cherry, black (*Prunus serotina*)	71 (T8-B4)	36 (T5-B3)	35 (T5-B2)	13 (T3-B2)	9 (T3-A1)		Schedules also suggested in Eastern Canadian Manual (3).
Cherry, bitter (*Prunus emarginata*)	35 (T5-B2)	9 (T3-A1)	—	—	—		For lower grades, use table 71 (T8-B4) or 290 for 4/4-5/4, and table 36 (T5-B3) for 6/4-8/4.
Chestnut (*Castanea dentata*)	98 (T10-E4)	83 (T8-E3)	—	—	—		
Chinkapin, giant or golden (*Castanopsis chryosphylla*)	292	—	—	—	—		5/4 and thicker, air dry to 20 percent moisture content and kiln dry by table 290.
Cottonwood balsam poplar (*Populus balsamifera*) black (*P. trichocarpa*) eastern (*P. deltoides*) plains (*P. sargentii*) swamp (*P. heterophylla*)							Schedules also suggested in Western Canadian Manual (3). Prone to collapse and checking.
normal wood	101 (T10-F5)	87 (T8-F4)	57 (T6-E3)	44 (T5-D2)	—		
wet streaks	81 (T8-D5)	53 (T6-C4)	30 (T4-D3)	19 (T3-D2)	—		
Cucumbertree (*Magnolia acuminata*)	103 (T11-D4)	95 (T10-D3)	—	—	—		
Dogwood, flowering (*Cornus florida*)	52 (T6-C3)	16 (T3-C2)	—	—	—	Shuttles 13 (T3-B2)	
Dogwood, Pacific (*Cornus nuttallii*)	52 (T6-C3)	16 (T3-C2)	—	—	—	4-inch squares 13 (T3-B2)	
Elm American (*Ulmus americana*) slippery (*U. rubra*)	56 (T6-D4)	45 (T5-D3)	44 (T5-D2)	16 (T3-C2)	—		Schedules also suggested in Eastern Canadian Manual (3).
Elm rock (*Ulmus thomasii*) winged (*U. alata*)	50 (T6-B3)	13 (T3-B2)	13 (T3-B2)	12 (T3-B1)	9 (T3-A1)		
Hackberry (*Celtis occidentalis*) sugarberry (*Celtis laevigata*)	75 (T8-C4)	52 (T6-C3)	52 (T6-C3)	41 (T5-C3)	12 (T3-B1)		
Hickory mockernut (*Carya tomentosa*) pignut (*C. glabra*) sand (*C. pallida*) shagbark (*C. ovata*) shellbark (*C. laciniosa*)	79 (T8-D3)	54 (T6-D1)	—	—	—	White handles - small 3 (T1-D2) - large 2 (T1-C2) Pink handles - small 77 (T8-D1) - large 72 (T8-C1)	Schedules also suggested in Eastern Canadian Manual (3).

Index to Schedules for Kiln-Drying United States and Canadian Hardwood Species at Conventional and Elevated Temperatures—con.
Entries are the table numbers in the publication for the schedule applicable to each species and thickness.

Common name (botanical name)	4/4, 5/4, 6/4 stock	8/4[1] stock	10/4[1] stock	12/4[1] stock	16/4[1] stock	Other products	Comments
	Table number (schedule code) [2]						
Holly, American (*Ilex opaca*)	56 (T6-D4)	27 (T4-C3)	—	—	—		
Hophornbeam (ironwood) (*Ostrya virginiana*)	50 (T6-B3)	12 (T3-B1)	—	—	—		
Laurel, California (Oregon myrtle) (*Umbellularia californica*)	49 (T6-A4)	33 (T5-A3)	—	—	—		For lower grades, use table 290 for 4/4-5/4. 6/4 and thicker, air dry to 20 percent moisture content and kiln dry by table 290, starting with step 4.
Time schedule	290						
Locust, black (*Robinia pseudoacacia*)	48 (T6-A3)	9 (T3-A1)	—	—	—		
Madrone (*Arbutus menziesii*)	23 (T4-B2)	12 (T3-B1)	—	—	—		4/4 and thicker, air dry to 20 percent moisture content and kiln dry by table 291. Prone to excessive warp.
Magnolia southern (*Magnolia grandiflora*) sweetbay (*M. virginiana*)	96 (T10-D4)	79 (T8-D3)	—	—	—		
Maple Oregon (*Acer macrophyllum*) soft red (*A. rubrum*) silver (*A. saccharinum*)	80 (T8-D4)	52 (T6-C3)	40 (T5-C2)	13 (T3-B2)	—		
Time schedule for Oregon maple	289	288	—	—	—		For lower grades, use table 290 for 4/4, table 288 for 6/4, and table 289 for 8/4.
Maple, hard black (*Acer nigrum*) sugar (*A. saccharum*)	74 (T8-C3)	40 (T5-C2)	13 (T3-B2)	9 (T3-A1)	9 (T3-A1)	Bowling pins (end coated) 11 (T3-A3) 1-inch squares 75 (T8-C4) 2-inch squares 41 (T5-C3)	Schedules also suggested in Eastern Canadian Manual (3). For whitest color, 4/4 and 5/4 with initial moisture contents 50 percent and lower, use table 111. For whitest color, 4/4 and 5/4 with initial moisture contents 51 percent and higher, use table 112. Northeastern Regional Schedule; for 4/4-6/4 use table 120; for 8/4, use table 121.
Myrtle, Oregon (*Umbellularia californica*)	290	—	—	—	—		6/4 and thicker, air dry to 20 percent moisture content and kiln dry by table 290, starting with step 4. For lower grades, use table 290 for 4/4-5/4.
Oak, western California black (*Quercus kelloggii*) Oregon white (*Q. garryana*) canyon live (*Q. chrysolepis*)	12 (T3-B1)	12 (T3-B1)	—	—	—		For lower grades, use table 292 for 4/4, table 293 for 6/4, and table 15 (T3-C1) for 8/4. For upper grades, 4/4-5/4, air dry to 20 percent and use table 291. 6/4-8/4, air dry to 20 percent and use table 290, starting with step 3. Prone to honeycomb and collapse.

Index to Schedules for Kiln-Drying United States and Canadian Hardwood Species at Conventional and Elevated Temperatures—con.
Entries are the table numbers in the publication for the schedule applicable to each species and thickness.

Common name (botanical name)	4/4, 5/4, 6/4 stock	8/4[1] stock	10/4[1] stock	12/4[1] stock	16/4[1] stock	Other products	Comments
	Table number (schedule code) [2]						
Oak, red (upland) black (*Quercus velutina*) blackjack (*Q. marilandica*) cherrybark (*Q. falcata var. pagodaefolia*) northern pin (*Q. ellipsoidalis*) northern red (*Q. rubra*) scarlet (*Q. coccinea*) Schumard (*Q. shumardii*) southern red (*Q. falcata*) turkey (*Q. laevis*) water (*Q. nigra*)	29[a] (T4-D2)	18 (T3-D1)	15 (T3-C1)	15 (T3-C1)	—		Schedules also suggested in Eastern Canadian Manual (3). [a] For 6/4, use table 18 (T3-D1). If bacterially infected stock is present consider using table 114 for 4/4, table 115 for 6/4, and tables 116 or 117 for 8/4 to minimize honeycomb. If presurfacing green 4/4 stock, use table 118. Northeastern Regional Schedule; for 4/4-5/4, use table 122; for 8/4, use table 123.
Oak, red (lowland) cherrybark (*Quercus falcata var. pagodaefolia*) laurel (*Q. laurifolia*) nuttall (*Q. nuttallii*) pin (*Q. palustris*) Shumard (*Q. shumardii*) water (*Q. nigra*) willow (*Q. phellos*)	5[b] (T2-C1)	113	—	—	—		Schedules also suggested in Eastern Canadian Manual (3). [b] For 6/4, use table 113.
Oak, white (upland) blue (*Quercus douglasii*) bur (*Q. macrocarpa*) chestnut (*Q. prinus*) chinkapin (*Q. muehlenbergii*) Emory (*Q. emoryi*) Gambel (*Q. gambelii*) Mexican blue (*Q. oblongifolia*) post (*Q. stellata*) white (*Q. alba*)	27[c] (T4-C2)	15 (T3-C1)	12 (T3-B1)	12 (T3-B1)	—		Schedules also suggested in Eastern Canadian Manual (3). [c] For 6/4, use table 15 (T3-C1). If presurfacing green 4/4 stock, use table 119.
Oak, white (lowland) bur (*Quercus macrocarpa*) live (*Q. virginiana*) overcup (*Q. lyrata*) swamp chestnut (*Q. michauxii*) swamp white (*Q. bicolor*) white (*Q. alba*)	5 (T2-C1)	113	—	—	—		Schedules also suggested in Eastern Canadian Manual (3). [d] For 6/4, use table 113.
Osage-orange (*Maclura pomifera*)	47 (T6-A2)	9 (T3-A1)	—	—	—		

Index to Schedules for Kiln-Drying United States and Canadian Hardwood Species at Conventional and Elevated Temperatures—con. Entries are the table numbers in the publication for the schedule applicable to each species and thickness.

Common name (botanical name)	4/4, 5/4, 6/4 stock	8/4[1] stock	10/4[1] stock	12/4[1] stock	16/4[1] stock	Other products	Comments
	Table number (schedule code)[2]						
Pecan (*Carya illinoensis*), also bitternut hickory (*C. cordiformis*) nutmeg hickory (*C. myristicaeformis*) water hickory (*C. aquatica*)	79 (T8-D3)	54 (T6-D1)	—	—	—		
Persimmon (*Diospyros virginiana*)	52 (T6-C3)	16 (T3-C2)	—	—	—	Golf club heads 16 (T3-C2) Shuttles 13 (T3-B2)	
Sapgum (sweetgum sapwood) (*Liquidambar styraciflua*)	107 (T12-F5)	103 (T11-D4)	—	—	—		
Sassafras (*Sassafras albidum*)	80 (T8-D4)	—	—	—	—		
Sweetgum (heartwood) (*Liquidambar styraciflua*)	75 (T8-C4)	41 (T5-C3)	40 (T5-C2)	35 (T5-B2)	—	1-inch squares 108 (T12-F6) 2-inch squares 104 (T11-D5)	
Sycamore (*Platanus occidentalis*)	55 (T6-D2)	18 (T3-D1)	18 (T3-D1)	15 (T3-C1)	12 (T3-B1)		
Tanoak (*Lithocarpus densiflorus*)	12 (T3-B1)	12 (T3-B1)	—	—	—		For lower grades, use table 292 for 4/4 and 5/4. 5/4 and thicker, air dry to 20 percent and use table 290, starting with step 3.
Tupelo, black (*Nyssa sylvatica*)	105 (T12-E5)	102 (T11-D3)	102 (T11-D3)	88 (T9-C2)	64 (T7-C2)		
Tupelo, swamp (*Nyssa sylvatica var. biflora*)	97 (T10-E3)	78 (T8-D2)	—	—	—		
Tupelo, water (*Nyssa aquatica*)	60 (T6-H2)	—	—	—	—		
Walnut, black (*Juglans nigra*)	56 (T6-D4)	20 (T3-D3)	20 (T3-D3)	16 (T3-C2)	—	Gunstock blanks 21 (T3-D4)	Schedules also suggested in Eastern Canadian Manual (3).
Willow, black (*Salix nigra*)	100 (T10-F4)	86 (T8-F3)	—	—	—		
Yellow-poplar (*Liriodendron tulipifera*)	103 (T11-D4)	95 (T10-D3)	89 (T9-C3)	64 (T7-C2)	40 (T5-C2)		

[1] A good end coating should be applied to all stock in most cases, particularly refractory species such as oak and beech.

[2] U.S. Forest Products Laboratory code numbers from Agriculture Handbook 188, 1961.

Index of Schedules for Kiln-Drying United States and Canadian Softwood Species at Conventional Temperatures
A. Moisture Content-Controlled Schedules[1]

Common name (botanical name)	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British Schedule[2] 4/4 stock	Comments
	Table number (schedule code)[3]						
Baldcypress (*Taxodium distichum*)	269 (T12-E3)	—	257 (T11-D2)	231 (T8-A4)	231 (T8-A4)	K	
Cedar							
Alaska yellow (*Chamaecyparis nootkatensis*)	261 (T12-A3)	—	248 (T11-A2)	—	—	J	
Atlantic white (*Chamaecyparis thyoides*)	262 (T12-A4)	—	249 (T11-A3)	—	—	—	
eastern redcedar (*Juniperus virginiana*)	206 (T5-A4)	—	205 (T5-A3)	—	—	—	
incense (*Libocedrus decurrens*)	253 (T11-B5)	—	242 (T10-B4)	—	—	—	
northern white (*Thuja occidentalis*)	264 (T12-B4)	—	251 (T11-B3)	—	—	—	
Port Orford (*Chamaecyparis lawsoniana*)	252 (T11-B4)	—	241 (T10-B3)	—	—	—	
western redcedar (*Thuja plicata*)							
light	243 (T10-B5)	—	241 (T10-B3)	—	—	J	
heavy	216 (T5-F4)	—	215 (T5-F3)	—	—	—	
Douglas-fir, coast (*Pseudotsuga menziesii*)	250 (T11-A4)	—	240 (T10-A3)	203 (T5-A1)	203 (T5-A1)	K	
Fir							
balsam (*Abies balsamea*)	270 (T12-E5)	—	247 (T10-E4)	231 (T8-A4)	231 (T8-A4)	L	
California red (*A. magnifica*)	270 (T12-E5)	—	247 (T10-E4)	230 (T8-A3)	230 (T8-A3)	—	
grand (*A. grandis*)	270 (T12-E5)	—	247 (T10-E4)	231 (T8-A4)	230 (T8-A3)	—	
noble (*A. procera*)	263 (T12-A5)	250 (T11-A4)	240 (T10-A3)	204 (T5-A2)	204 (T5-A2)	—	
Pacific silver (*A. amabilis*)	265 (T12-B5)	—	241 (T10-B3)	—	—	—	
subalpine (*A. lasiocarpa*)	265 (T12-B5)	—	264 (T12-B4)	—	—	—	
white (*A. concolor*)	270 (T12-E5)	260 (T11-D5)	247 (T10-E4)	231 (T8-A4)	231 (T8-A4)	—	
Hemlock							
eastern (*Tsuga canadensis* and *T. caroliniana*)	266 (T12-C4)	—	254 (T11-C3)	230 (T8-A3)	229 (T8-A2)	K	
western (*Tsuga mertensiana* and *T. heterophylla*)	267 (T12-C5)	256 (T11-C5)	255 (T11-C4)	231 (T8-A4)	230 (T8-A3)	K	
Larch, western (*Larix occidentalis*)	235 (T9-B4)	223 (T7-C4)	222 (T7-C3)	220 (T7-A3)	219 (T7-A2)	—	
Pine							
eastern white (*Pinus strobus*)							
standard	256 (T11-C5)	—	244 (T10-C4)	244 (T10-C4)	232 (T8-C3)	L	16/4, use table 208 (T5-C2).
antibrown-stain	276	—	277	—	278	—	Northeastern Regional Schedule; for 4/4-6/4, use table 310; for 8/4, use table 311.
lodgepole (*Pinus contorta*)	244 (T10-C4)	—	236 (T9-C3)	—	—	L	
ponderosa (*Pinus ponderosa*)							
standard	238 (T9-C6)	225 (T7-C6)	224 (T7-C5)	221 (T7-A4)	221 (T7-A4)	L	
antibrown-stain	228 (T7-E6)	—	227 (T7-E5)	—	—	—	
red or Norway (*Pinus resinosa*)	264 (T12-B4)	—	251 (T11-B3)	220 (T7-A3)	220 (T7-A3)	L	

Index of Schedules for Kiln-Drying United States and Canadian Softwood Species at Conventional Temperatures—con.
A. Moisture Content-Controlled Schedules[1]

Common name (botanical name)	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British Schedule[2] 4/4 stock	Comments
	Table number (schedule code)[3]						
Pine—con.							
southern							
loblolly (*Pinus taeda*)							
longleaf (*P. palustris*)							3 by 5 timbers, use table 280.
shortleaf (*P. echinata*)							
slash (*P. elliottii*)							
regular	272 (T13-C6)	267 (T12-C5)	267 (T12-C5)	244 (T10-C4)	244 (T10-C4)	L	
highest quality	279	279	279	244 (T10-C4)	244 (T10-C4)	—	
sugar (*Pinus lambertiana*)							
light	214 (T5-E6)	214 (T5-E6)	213 (T5-E5)	—	—	L	
heavy	218 (T5-F6)	218 (T5-F6)	217 (T5-F5)	—	—	—	
western white (*Pinus monticola*)	237 (T9-C5)	224 (T7-C5)	223 (T7-C4)	223 (T7-C4)	209 (T5-C3)	L	
Redwood (*Sequoia sempervirens*)							
light	212 (T5-D6)	—	211 (T5-D4)	210 (T5-C4)	209 (T5-C3)	K	
heavy	202 (T4-F5)	201 (T3-F5)	200 (T3-F4)	—	—	—	
Spruce							
black (*Picea mariana*)	252 (T11-B4)	—	241 (T10-B3)	204 (T5-A2)	204 (T5-A2)	K	
Engelmann (*P. engelmannii*)	239 (T9-E5)	—	226 (T7-E4)	221 (T7-A4)	220 (T7-A3)	K	
red (*P. rubens*)	252(T11-B4)	—	241 (T10-B3)	204 (T5-A2)	204 (T5-A2)	K	
Sitka (*P. sitchensis*)	265 (T12-B5)	264 (T12-B4)	251 (T11-B3)	207 (T5-B2)	207 (T5-B2)	J	
white (*P. glauca*)	252 (T11-B4)	—	241 (T10-B3)	204 (T5-A2)	204 (T5-A2)	K	
Tamarack (*Larix laricina*)	251 (T11-B3)	—	241 (T10-B3)	220 (T7-A3)	220 (T7-A3)	K	

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[1] For uses where close control of final moisture content is required, such as furniture stock, cabinets, and millwork.

[2] Source: Timber Drying Manual, G. H. Pratt, 1974.

[3] U.S. Forest Products Laboratory code numbers from Agriculture Handbook 188, 1961.

Index of Schedules for Kiln-Drying United States and Canadian Softwood Species at Conventional Temperatures
B. Time-Controlled Schedules[1]

Common name (botanical name)	Lower grades[2]			Upper grades[3]				Comments
	4/4, 5/4 stock	6/4 stock	8/4 stock	4/4, 5/4 stock	6/4 stock	8/4 stock	12/4, 16/4 stock	
	Table number							
Cedar								Light to medium sorts only. Prone to collapse. For heavy sort, air dry to 20 percent moisture content and kiln dry by table 290, starting with step 4.
Alaska yellow (*Chamaecyparis nootkatensis*)	287	290	290	287	290	290	—	
incense (*Libocedrus decurrens*)	290[a]	290	289	290[a]	290	289	296	[a] Use 12 hours for each setting. Decrease dry- and wet-bulb settings by 10 °F for first 48 hours.
Port Orford (*Chamaecyparis lawsoniana*)	290	—	288	290	296	296	—	
western juniper (*Juniperus occidentalis*)	290	290	—	290	290	—	—	
western redcedar (*Thuja plicata*)	290	290	289	290	290	296	—	
Douglas-fir (*Pseudotsuga menziesii*)	291[b]	291[c]	291[c]	294[d]	294[d]	294[d]	268	Upper grades including laminated stock, dimension, 4/4 common. Clears and shop require conditioning in most cases. Ladder stock requires lower temperature to prevent strength reduction. [b] Omit step 1 and reduce step 3 to 12 hours. [c] Reduce step 3 to 12 hours. [d] Omit step 1 for vertical grain.
Fir, true	291	291	291[e]	294[f]	294[g]	294[g]	288	True fir and hemlock can be dried together, but problems with percent overdry and wets are likely. [e] 96-108 hours all widths. [f] 96 hours flat grain; start with step 2 for vertical grain, 60 hours. [g] 10-14 days for sinker heartwood.
alpine (*Abies lasiocarpa*)								
balsam (*A. balsamea*)								
California red (*A. magnifica*)								
grand (*A. grandis*)								
noble (*A. noblis*)								
Pacific silver (*A. amabilis*)								
white (*A. concolor*)								
Hemlock								Hemlock and true fir can be dried together, but problems with percent overdry and wets are likely. Prone to excessive warp and checking. [h] 96-108 hours all widths. [i] 96 hours flat grain; start with step 2 for vertical grain, 60 hours. [j] 14 days for sinker heartwood.
mountain (*Tsuga mertensiana*)	291	291	291	—	—	—	—	
western (*T. heterophylla*)	291	291	291[h]	294[i]	294[j]	294[j]	288	
Larch								
alpine (*Larix lyalli*)	291	291	291	—	—	—	—	
western (*L. occidentalis*)	291	291	291	294	294	294	288	
Pine								
eastern white (*Pinus strobus*)	308	—	309	—	—	—	—	
jack (*P. banksiana*)	291[k]	291[k]	291[k]	291[k]	—	—	—	[k] Omit first 12 hours of schedule.
Jeffrey (*P. jeffreyi*)	291[k]	291[k]	291[k]	—	—	—	—	
limber (*P. flexilis*)	291[k]	291[k]	291[k]	291[k]	294	294	—	
lodgepole (*P. contorta*)	291[k]	291[k]	291[k]	291[k]	294	294	289	
ponderosa (*P. ponderosa*)	297	298	298	299	300	301	302	

Index of Schedules for Kiln-Drying United States and Canadian Softwood Species at Conventional Temperatures—con.
B. Time-Controlled Schedules[1]

	Lower grades[2]			Upper grades[3]				
Common name (botanical name)	4/4, 5/4 stock	6/4 stock	8/4 stock	4/4, 5/4 stock	6/4 stock	8/4 stock	12/4, 16/4 stock	Comments
	Table number							
Pine—con.								
southern	281	—	282	281	—	282	284	3 by 5 timbers, use table 285. 10/4 and 12/4 flitches, use table 283.
loblolly (*Pinus taeda*)								
longleaf (*P. palustris*)								
shortleaf (*P. echinata*)								
slash (*P. elliottii*)								
sugar (*P. lambertiana*)								
heavy	304	305	305	304	305	—	—	
light	303	303	306	303	303	305	307	
western white/Idaho white (*P. monticola*)	295	301	301	295	301	301	—	
Redwood (*Sequoia sempervirens*)								[1] Air dry to 20 percent moisture content, then dry by table 286.
light	289	288	(1)	289	288	(1)	—	
heavy and medium	(m)	(m)	(m)	(m)	(m)	(m)	—	[m] Air dry to 20 percent moisture content, then dry by table 289. Prone to collapse.
Spruce								
black (*Picea mariana*)	291[n]	291[n]	291[n]	291	289	289	288	[n] Reduce last 3 steps of schedule from 24 to 18 hours each setting.
Engelmann (*P. engelmannii*)	291[n]	291[n]	291	291	289	289	288	
red (*P. rubens*)	291[o]	291[o]	291	291	291	291	—	
Sitka (*P. sitchensis*)	294	294	287	287	287	290	288[o]	[o] Air dry to 20 percent moisture content, then dry by table 291.
white (*P. glauca*)	291[n]	291[n]	291	291	289	289	288	
Yew, Pacific (*Taxus brevifolia*)	290	290	288	290	290	290[o]	—	

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[1] For most construction, dimension and factory lumber. Time schedules for many of these species also suggested in Western Canadian Manual (2) and Knight (6).

[2] Lower grades include commons, dimension, box, and studs.

[3] Upper grades include clears, selects, shop, and factory.

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Section II.
U.S. and Canadian Species—High Temperatures

High-temperature kiln drying is accomplished at dry-bulb temperatures of 212 °F (100 °C) or higher, usually in the range of 230 to 250 °F (110 and 121 °C). This is a relatively new approach to commercial lumber drying, and proven schedules are not available for every species. The best success has been with softwood species. High-temperature kiln schedules have been suggested in some manuals for selected western softwoods since the late 1960's. High-temperature kiln drying can possibly cause noticeable strength losses. This should be considered when selecting a kiln schedule for a product where loss of bending or tension strength is important.

High-temperature schedules for the southern pines have been used since the early 1970's. Since the mid-1970's, the majority of new kiln-drying installations for southern pine have been using high-temperature drying. Most of these kilns are direct fired, i.e., the hot combustion gases from natural gas, wood, or oil are fed directly into the kiln. There are a few steam-heated kilns drying southern pine.

High-temperature drying of hardwoods is just emerging from the research stage and has not as yet enjoyed much commercial application. Acceptable response to high-temperature drying of hardwoods from the green condition is very species dependent, varying from quite acceptable to quite unsatisfactory. The most common high-temperature drying defects are honeycomb, collapse, checking, and darkening of the wood. For many species, a combination schedule—starting from the green at conventional temperatures and switching to high temperatures when the lumber has dried to 20 to 25 percent MC—gives acceptable results, where high-temperature drying from the green does not. Current research suggests that with some species and thicknesses the change from conventional temperature to high temperature can be made when the moisture content is as high as 30 to 40 percent, thereby cutting drying time by up to 60 percent while increasing drying defects by about 15 percent. The acceptability of these kinds of processing tradeoffs depends a great deal on the product being produced. For high-temperature drying of hardwoods, steam-heated kilns are preferred over direct-fired kilns.

High-temperature drying is best done in kilns where air speeds through the lumber of 800 to 1,500 feet per minute (4.1 to 7.6 m/sec) can be achieved. While common industrial practice is to use pile widths of 7 to 9 feet and fan reversal every 4 to 6 hours, more uniform drying can be achieved with piles not more than 6 feet wide and fan reversals every 2 to 3 hours.

Schedules for drying flitches for the Saw-Dry-Rip (SDR) process, developed at the FPL, are listed for selected species. This process consists of live-sawing small logs, drying the flitches, then ripping to produce material for construction type uses.[5] This use is more tolerant of drying defects than uses such as furniture manufacturing where appearance is very important.

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[5] For information on Saw-Dry-Rip, see the following references:

Maeglin, R. R.; Boone, R. S. 1981. Manufacturing quality structural lumber from hardwoods using the Saw-Dry-Rip process. In: Proceedings, 9th annual hardwood symposium of the Hardwood Research Council: 29-45.

Maeglin, R. R.; Boone, R. S. 1983. Manufacture of quality yellow-poplar studs using Saw-Dry-Rip (S-D-R) concept. Forest Products Journal. 33(3): 10-18.

Maeglin, R. R.; Boone, R. S. 1985. Evaluation of mixed hardwood studs manufactured by the Saw-Dry-Rip (SDR) process. Res. Note FPL-0249. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 10 p.

Index of Schedules for Kiln-Drying United States and Canadian Woods at High Temperatures (>212 °F)

Common name (botanical name)	4/4, 5/4 stock	6/4 stock	8/4 stock	Other products	Comments
	Table number				
			SOFTWOODS		
Cedar, northern white (*Thuja occidentalis*)	[1]409	—	—		[a] Schedule for western species is for 6 inches and narrower in width; for use with common and dimension grade, except as noted for upper grades.
Douglas-fir (*Pseudotsuga menziesii*)	400[a,b,c,d]	400[a,d]	400[a,d] 414[d,2]		[b] Reduce step 1 and 2 to 6 hours for 4/4-5/4 for western species. [c] In upper grades, use only vertical grain stock. [d] Can be dried with western larch.
Fir, true					
balsam (*A. balsamea*)	400[a,b,e]	400[a]	400[a]		[e] In upper grades, use only vertical grain stock, containing no sinker in white fir (*A. concolor*), except in 4/4 stock. [f] Can be dried with western hemlock.
California red (*A. magnifica*)	400[a,b,e]	400[a]	400[3]		
grand (*A. grandis*)	400[a,b,e,f]	400[a,f]	400[a,f]		
noble (*A. procera*)	400[a,b,e,f]	400[a,f]	400[a,f]		
Pacific silver (*A. amabilis*)	400[a,b,e,f]	400[a,f]	400[a,f] 415[f,2]		
subalpine (*Abies lasiocarpa*)	400[a,b,e]	400[a]	400[a] [2]416		
white (*A. concolor*)	400[a,b,e,f]	400[a,f]	400[a,f]	4- by 6-inch decking [3]405 Studs [3]406	
Hemlock					
mountain (*Tsuga mertensiana*)	400[a,b]	400[a]	400[a]		
western (*T. heterophylla*)	400[a,b,c,g]	400[a,c,g]	400[a,g] 415[g,2]		[g] Can be dried with Pacific silver fir, grand fir, noble fir, and white fir.
Larch, western (*Larix occidentalis*)	400[a,b,c,h]	400[a,h]	400[a,h] 414[h,2]		[h] Can be dried with Douglas-fir.
Pine					
jack (*Pinus banksiana*)	400[a,b]	400[a]	400[a]	Studs [2]412	
limber (*P. flexilis*)	400[a,b]	400[a]	400[a]		
lodgepole (*P. contorta*)	400[a,b]	400[a]	400[a]	Studs [2]412 Studs [3]407	
ponderosa (*P. ponderosa*)	400[a,b]	400[a]	400[a]		
red (Norway) (*P. resinosa*)	[1]410	—	[1]411		
southern	401,402[i]			2 by 4 403[i]	[i] Can be used with steam heat.
loblolly (*P. taeda*)		—	—	2 by 10 403[i]	
longleaf (*P. palustris*)		—	—	4 by 4 404[i]	
shortleaf (*P. echinata*)		—	—		
slash (*P. elliottii*)		—	—		

Index of Schedules for Kiln-Drying United States and Canadian Woods at High Temperatures (>212 °F)—con.

Common name (botanical name)	4/4, 5/4 stock	6/4 stock	8/4 stock	Other products	Comments
	-Table number-				
Spruce					
black (*Picea mariana*)	400[a,b]	400[a]	400[a]		
	[1]410	—	[1]411		
Engelmann (*Picea engelmannii*)	400[a,b]	400[a]	400[a]		
red (*P. rubens*)	[1]410	—	[1]411		
white (*P. glauca*)	400[a,b]	400[a]	400[a]	Studs 412[j,2]	[j] Can be dried with jack and lodgepole pine.
	410[k]	—	411[k,2]		[k] Use with gas-fired kilns.
			HARDWOODS[4]		
Alder, red (*Alnus rubra*)	418[l]	—	—	S-D-R 420	[l] 4/4 stock only for all grades.
Aspen (*Populus grandidentata*)	[1]408	—	—	7/4 and 2-inch dimension [1]408 2 by 4 dimension 417[m]	[m] In upper grades, use only vertical grain stock.
Balsam poplar (*Populus balsamifera*)	—	—	—	2 by 4 dimension 418[n]	[n] Can be dried with aspen.
Basswood (*Tilia americana*)	419	—	—	S-D-R 420	
Blackgum (*Nyssa sylvatica*)	419	—	—		
Maple, red (*Acer rubrum*)	419	—	—	S-D-R 420	
Sweetgum sapwood (*Liquidambar styraciflua*)	419	—	—		
Yellow-poplar (*Liriodendron tulipifera*)	419	—	—	S-D-R 420	

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[1] Source: Kiln Operator's Manual for Eastern Canada, M. Y. Cech and F. Pfaff, 1977.

[2] Source: Kiln Drying of Western Canadian Lumber, G. Bramhall and R. W. Wellwood, 1976.

[3] Source: Kiln Drying Western Softwoods, E. Knight, 1970.

[4] Stock subjected to high temperature while at moisture contents representative of green from the saw. One-inch-thick lumber of several other species, including the oaks, can be subjected to high temperature if average moisture content is 20 percent or lower.

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Section III.
Latin American (Mexico, Central, and South America) Woods— Conventional Temperatures

Schedules in this section are gathered from the world literature and are listed by botanical or scientific name. Because of the wide variation found within a species, these schedules are considered conservative. They are intended for use in steam-heated kilns operated between 100 and 180 °F (38 and 82 °C), with air speeds through the lumber from 200 to 400 feet per minute (1 to 2 m/sec). Changes in instrument settings are generally made on the basis of MC of the wood and the use of sample boards is **highly recommended** (see app. B). In a few instances, time schedules are also suggested for a given species.

Schedules are listed for two thickness groups, 4/4 to 6/4 and 8/4 using U.S. schedule format, and for 4/4 to 6/4 stock by British schedule. When available from the British Timber Drying Manual, the standard kiln-drying schedule is listed in Roman type. When not available from British sources, the nearest British equivalent to the U.S. schedule is given in italicized type. In some cases where previously only British schedules had been published, the nearest U.S. schedule equivalent is given. Assembled British standard kiln-drying schedules are printed in appendix E. Thus, operators can use either the U.S. schedule or the British, depending on their preference and experience.

Index of Schedules for Kiln-Drying Latin American (Mexico, Central and South America) Woods

Botanical name (common name(s)[2])	U.S. Schedule 4/4, 5/4, 6/4 stock	U.S. Schedule 8/4 stock	British Schedule[1] 4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		Code	
Abies religiosa (oyamel, abeto)	313 (T10-F6S)[3]	—	—	
Aextoxicon punctatum (olivillo)	—	—	E	
Alexa imperatricis (haiari, haiariballi)	6 (T2-C2)	5 (T2-C1)	B	Marked tendency to collapse.
Alnus arguta (aile, ailite)	97 (T10-E3)	—	—	
Anacardium excelsum (espave, caracoli)	55 (T6-D2)	18 (T3-D1)	E	
Anadenanthera macrocarpa (curupay, angico prieto, cebil)	70 (T8-B3)	34 (T5-B1)	G	
Andira spp. (moca, rode Kabbes, acapúrana)	19 (T3-D2)	—	—	
Araucaria araucana (Chilean-pine)	246 (T10-D5S)	234 (T8-D4S)	J	
Araucaria augustifolia (Parana-pine)	19 (T3-D2)	18 (T3-D1)	D	
Aspidosperma spp.				
Araracanga group (araracanga, volador, copachi, jacamim)	62 (T7-B3)	—	—	
Peroba group (peroba rosa, amerello)	55 (T6-D2)	18 (T3-D1)	E	
Astronium graveolens (goncalo alves, palo de cera, guarita, guasango)	16 (T3-C2)	—	*C*	
Balfourodendron riedelianum (pau marfim, guatambú)	52 (T6-C3)	40 (T5-C2)	*E*	For 2-1/2 and 3 inches square, use 13 (T3-B2).
Bowdichia spp. (sucupira, alcornoque)	35 (T5-B2)	—	—	
Brosimum spp. Utile group (sande, cow-tree)	41 (T5-C3)	—	—	
Brya ebenus (cocuswood)	—	—	A	
Byrsonima coriacea var. *spicata* and *Byrsonima* spp. (serrette, changugo, candelo)	55 (T6-D2)	18 (T3-D1)	E	
Caesalpinia spp. (partridgewood, coffeewood)	16 (T3-C2)	15 (T3-C1)	C	
Calophyllum brasiliense (Santa Maria, jacareuba)	8(T2-D4)	7 (T2-D3)	A	
Calycophyllum candidissimum (degame, lemonwood)	6 (T2-C2)	5 (T2-C1)	B	
Campnosperma panamensis (sajo, orey)	41 (T5-C3)	—	—	
Carapa guianensis (crabwood, andiroba)	16 (T3-C2)	15 (T3-C1)	C	
Cariniana pyriformis (albarco, jequitiba)	19 (T3-D2)	18 (T3-D1)	D	
Cariniana spp. (albarco, jequitiba)	19 (T3-D2)	18 (T3-D1)	D	
Catostemma spp. (baromalli)	55 (T6-D2)	18 (T3-D1)	E	
Cecropia peltata (trumpet wood)	63 (T7-B6)	38 (T5-B5)	—	
Cedrela spp. (Spanish-cedar, cedro)	245 (T10-D4S)	233 (T8-D3S)	H	
Ceiba pentandra (ceiba, silk-cotton-tree, kapok-tree)	246 (T10-D5S)	234 (T8-D4S)	J	
Centrolobium ochroxylon (arariba, canary wood, porcupine wood)	55 (T6-D2)	18 (T3-D1)	E	
Cordia spp. (canalete, freijo, laurel blanco)	55 (T6-D2)	18 (T3-D1)	E	
Cupressus benthami (cedro blanco)	260 (T11-D5S)	207 (T5-B2S)	—	
Cupressus lindleyi (cedro blanco, cipres)	268 (T12-D5S)	207 (T5-B2S)	—	
Cupressus lusitanica (Mexican cypress)	246 (T10-D5S)	234 (T8-D4S)	*J*	
Cybistax donnell-smithii (primavera)	59 (T6-F3)	—	—	
Dalbergia nigra (Brazilian rosewood, jacarandá)	16 (T3-C2)	15 (T3-C1)	*C*	
Dalbergia retusa (cocobolo)	6 (T2-C2)	5 (T2-C1)	*B*	
Dalbergia stevensonii (Honduras rosewood)	16 (T3-C2)	15 (T3-C1)	C	
Dialyanthera spp. (cuangare, "virola")	41 (T5-C3)	—	—	
Dicorynia guianensis (basralocus, angelique)	4 (T2-B2)	—	—	
Diplotropis purpurea (sucupipa)	62 (T7-B3)	—	—	
Enterolobium cyclocarpum (guanacaste)	56 (T6-D4)	—	*F*	
Eperua spp. (wallaba)	6 (T2-C2)	5 (T2-C1)	B	
Erisma uncinatum (jaboty)	3 (T1-D2)	—	—	
Eucryphia cordifolia (ulmo)	16 (T3-C2)	15 (T3-C1)	C	Prone to severe surface and end checking.

Index of Schedules for Kiln-Drying Latin American (Mexico, Central and South America) Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule 4/4, 5/4, 6/4 stock	U.S. Schedule 8/4 stock	British Schedule[1] 4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		*Code*	
Gossypiospermum praecox (Maracaibo boxwood, West Indian boxwood)	9 (T3-A1)	—	—	
Goupia glabra (kopie, kabukalli)	62 (T7-B3)	—	—	
Guaiacum spp. (lignumvitae, guayacan)	6 (T2-C2)	5 (T2-C1)	B	
Guarea excelsa (cramantee)	55 (T6-D2)	18 (T3-D1)	E	
Guarea trichilioides (American muskwood)	55 (T6-D2)	18 (T3-D1)	E	
Guettarda sp. (glassy wood)	—	—	C	
Hevea brasiliensis (pará rubbertree, rubbertree)	55 (T6-D2)	—	*E*	For plantation-grown material.
Hura crepitans (hura, possumwood)	55 (T6-D2)	18 (T3-D1)	E	
Hymenaea courbaril (courbaril, algarrobo)	16 (T3-C2)	15 (T3-C1)	C	
Juglans spp. (nogal, tropical walnut)	56 (T6-D4)	20 (T3-D3)	*F*	Air dry as thoroughly as possible before kiln drying.
Laurelia aromatica (Chilean laurel)	—	—	C	
Lonchocarpus castilloi (black cabbage-bark)	70 (T8-B3)	34 (T5-B1)	G	
Lysiloma spp. (sabicú, t'zalam)	16 (T3-C2)	—	*C*	
Manilkara bidentata (bulletwood, balata)	1 (T1-B1)	—	*A*	Prone to severe checking and warping.
Mora excelsa (mora)	6 (T2-C2)	5 (T2-C1)	B	
Mora gonggrijpii (mora)	6 (T2-C2)	5 (T2-C1)	B	
Nothofagus dombeyi (coigue)	6 (T2-C2)	5 (T2-C1)	B	Pronounced tendency to distort and collapse.
Nothofagus procera (rauli)	55 (T6-D2)	18 (T3-D1)	E	
Ochroma pyramidale (balsa) Syn. *O. lagopus*	245 (T10-D4S)	233 (T8-D3S)	H	
Ocotea rodiaei (Demerara greenheart, greenheart)	6 (T2-C2)	5 (T2-C1)	B	Marked tendency to check and end split.
Ocotea rubra (determa, red louro)	55 (T6-D2)	18 (T3-D1)	E	
Paratecoma peroba (white peroba, peroba de campos)	19 (T3-D2)	18 (T3-D1)	D	
Parinari spp. (burada, foengoe)	6 (T2-C2)	—	*B*	Air drying prior to kiln drying suggested.
Peltogyne spp. (purpleheart, amaranth)	55 (T6-D2)	18 (T3-D1)	E	
Phoebe porosa (imbuia, Brazilian-walnut)	55 (T6-D2)	18 (T3-D1)	E	
Phyllostylon brasiliensis (San Domingo-boxwood)	4 (T2-B2)	—	—	
Pinus ayacahuite (ayacahuite pine)	316 (T13-F8S)	—	—	
Pinus caribaea (Caribbean pine)	245 (T10-D4S)	233 (T8-D3S)	H	
Pinus douglasiana (pino lacio amarillo)	315 (T13-F6S)	—	—	
Pinus durangensis (pino de seis hojas)	314 (T13-F5S)	—	—	
Pinus hartwegii (ocote)	314 (T13-F5S)	—	—	
Pinus lawsonii (pino hortiguillo)	315 (T13-F6S)	—	—	
Pinus leiophylla (pino chino)	315 (T13-F6S)	—	—	
Pinus montezumae (pino blanco)	315 (T13-F6S)	—	—	
Pinus oocarpa (ocote pine)	245 (T10-D4S)	233 (T8-D3S)	H	
Pinus patula (ocote colorado, patula pine—forest grown)	315 (T13-F6S)	—	—	
Pinus patula (patula pine—plantation grown)	271 (T13-C4S)	—	*K*	
Pinus pseudostrobus (pino blanco)	312 (T9-F3S)	—	—	
Pinus radiata (radiata pine—plantation grown)	—	—	*K*	
Pinus strobus var. *chapenis* (acalocote)	315 (T13-F6S)	—	—	
Plathymenia reticulata (vinhatico)	—	—	E	
Podocarpus guatemalensis (podocarp)	245 (T10-D4S)	233 (T8-D3S)	H	
Podocarpus nubigenus (manio)	—	—	*J*	
Prioria copaifera (cativo)	16 (T3-C2)	15 (T3-C1)	C	
Protium spp. (kurokai, copal)	16 (T3-C2)	15 (T3-C1)	C	
Qualea spp. (mandioqueira, gronfoeloe)	19 (T3-D2)	18 (T3-D1)	*D*	

Index of Schedules for Kiln-Drying Latin American (Mexico, Central and South America) Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule		British Schedule[1]	Comments
	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	
	Table no. (schedule code)		- - - - *Code* - - - -	
Quercus spp. (roble, encino, oak)	6^{a} (T2-C2)	5 (T2-C1)	*B*	Prone to severe checking, warping, and collapse. [a]For 6/4 use table 5.
Schinopsis spp. (quebracho)	1 (T1-B1)	—	—	Prone to severe checking and warping.
Sterculia pruriens (sterculia, maho)	8 (T2-D4)	7 (T2-D3)	A	
Swartzia spp. (wamara, bannia)	6 (T2-C2)	5 (T2-C1)	B	
Swietenia macrophylla (Honduras mahogany, caoba)	56 (T6-D4)	20 (T3-D3)	F	For 10/4 use table 24; 12/4 use table 13; 16/4 use table 12.
Swietenia mahagoni (West Indies mahogany)	56 (T6-D4)	20 (T3-D3)	*F*	
Symphonia globulifera (manni, chewstick)	16 (T3-C2)	15 (T3-C1)	C	
Tabebuia spp. - Lapacho group (ipe, bethabara, lapacho)	15 (T3-C1)	—	E	
Tabebuia spp. - Roble group (roble, mayflower)	55 (T6-D2)	18 (T3-D1)	E	
Taxodium mucronatum (sabino, ahuehuete)	211 (T5-D4S)	—	—	
Tectona grandis (teak - plantation grown)	—	—	H	
Terminalia amazonia (nargusta) Syn. *T. obovata*	16 (T3-C2)	15 (T3-C1)	C	
Triplaris guayaguilensis (fernan sanchez)	—	—	E	
Triplaris spp. (long john, mierenhout)	55 (T6-D2)	—	E	
Virola spp. (banak, baboen)	16 (T3-C2)	15 (T3-C1)	C	
Vochysia spp. (yemeri, quaruba)	8 (T2-D4)	7 (T2-D3)	A	
Vouacapoua americana (wacapou, acapu)	62 (T7-B3)	—	—	

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[1] *Source*: Timber drying manual, G. H. Pratt, 1974. See appendix E for listing of assembled schedules. Italicized letters refer to nearest British equivalent to U.S. schedule.

[2] See appendix D for common name index.

[3] Occasionally the letter "S" follows a kiln schedule code, e.g., T10-D5S. This refers to general wet-bulb depression schedules for the softwoods or conifers and is sometimes also suggested for drying certain hardwoods.

Section IV.
Asian and Oceanian Woods—Conventional and Elevated Temperatures

Schedules in this section are gathered from the world literature. Because of the wide variation found within a species, these schedules are considered conservative. They are intended for use in steam-heated kilns operated between 110 and 195 °F (43 and 90 °C), with air speeds through the lumber from 200 to 400 feet per minute (1 to 2 m/sec). Changes in instrument settings are generally made on the basis of MC of the wood, and the use of sample boards is **highly recommended** (see app. B). In a few instances, time schedules are also suggested for a given species.

Schedules are listed for two thickness groups, 4/4 to 6/4 and 8/4 using U.S. schedule format, and for 4/4 to 6/4 stock by the British schedule. Where available from the British Timber Drying Manual, the standard kiln-drying schedule is listed in Roman type. When not available from British sources, the nearest British equivalent to the U.S. schedule is given in italicized type. In some cases where previously only British schedules had been published, the nearest U.S. schedule equivalent is given. Assembled British standard kiln-drying schedules are printed in appendix E. Thus, operators can use either the U.S. schedule or the British, depending on their preference and experience.

Index of Schedules for Kiln-Drying Asian and Oceanian Woods

	U.S. Schedule		British Schedule[1]	
Botanical name (common name(s)[2])	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		Code	
Acacia koa (koa)	56 (T6-D4)	20 (T3-D3)	F	
Acacia melanoxylon (Australian blackwood)	55 (T6-D2)	18 (T3-D1)	E	
Acacia mollissima (black wattle)	8 (T2-D4)	7 (T2-D3)	A	Pronounced tendency to cup.
Acer mono (itayakaede)	41 (T5-C3)	—	—	Prone to warp.
Adina cordifolia (haldu, kwao)	55 (T6-D2)	18 (T3-D1)	E	
Aesculus turbinata (tochinoki)	92 (T10-C4)	—	—	
Agathis spp. (kauri agathis)	246 (T10-D5S)[3]	234 (T8-D4S)[3]	J	For 4/4 *A. alba*, use table 50 (T7-B3).
Abies firma (momi)	244 (T10-C4S)	—	—	Prone to water pockets.
Albizia falcataria (batai)	56 (T6-D4)	—	F	
Albizia lebbek (kokko)	55 (T6-D2)	18 (T3-D1)	E	
Ailanthus spp. (white sirus)	509 (43-33)	—	—	
Alstonia spp. (pulai, dita, basong, alstonia mergalang)	245 (T10-D4S)	—	H	
Anisoptera costata (mersawa, palosapis)	55 (T6-D2)	18 (T3-D1)	E	
Anisoptera thurifera (palosapis, mersawa)	8 (T2-D4)	—	A	Considerable variation in the drying rate of *Anisoptera* spp. has been reported.
Anogeissus acuminata (yon)	—	—	C	
Anthocephalus chinensis (kadam, laran, kalempayan)	245 (T10-D4S)	233 (T8-D3S)	H	
Araucaria spp. (hoop-pine, klinki-pine, Norfolk Island pine)	246 (T10-D5S)	234 (T8-D4S)	J	
Artocarpus spp. (keledang)	507 (35-44)	—	—	
Azadirachta spp. (neem, maranggo, tamaka)	8 (T2-D4)	7 (T2-D3)	A	
Balanocarpus spp. (chengal, penak, narek)	6 (T2-C2)	—	B	
Beilschmiedia tawa (tawa)	55 (T6-D2)	18 (T3-D1)	E	
Betula grossa (mizume)	52 (T6-C3)	—	—	
Betula maximowicziana (makanba)	75 (T8-C4)	—	—	
Bombax insigne (semul)	—	—	K	
Calophyllum spp. (bintangor, poon, bitanghol)	8 (T2-D4)	7 (T2-D3)	A	Prone to warp. End splitting is common.
Callitris glauca (white cypress pine)	223 (T7-C4S)	—	—	
Campnosperma brevipetiolata (campnosperma)	506 (35-35)	—	—	
Canarium euphyllum (kedondong, Dhup)	245 (T10-D4S)	—	H	
Cardwellia sublimis (silky oak)	—	—	E	
Castanospermum australe (black bean)	16 (T3-C2)	15 (T3-C1)	C	Air drying prior to kiln drying is suggested.
Casuarina spp. (casuarina, she-oak)	6 (T2-C2)	—	A	
Cedrela toona (toon, Australian red-cedar)	245 (T10-D4S)	233 (T8-D3S)	H	
Celtis spp. (celtis)	510 (43-44)	—	—	
Ceratopetalum apetalum (coachwood)	—	—	E	
Chamaecyparis obtusa (hinoki)	259 (T11-D4S)	—	—	
Chamaecyparis pisifera (sawara)	275 (T14-E6S)	—	—	
Chloroxylon swietenia (East Indian satinwood)	16 (T3-C2)	15 (T3-C1)	C	
Chukrasia tabularis (chickrassy)	55 (T6-D2)	18 (T3-D1)	E	
Cinnamomum spp. (cinnamon wood, camphor wood)	94 (T10-D2)	—	—	
Cocos nucifera (coconut wood)	516	517	—	Air dry 8/4 to 25-30 percent prior to kiln drying.
Cratoxylon arborescens (geronggang, serungan)	55 (T6-D2)	18 (T3-D1)	E	
Cryptomeria japonica (sugi)	105 (T12-E5)	—	—	
Cyclobalanopsis acuta (akagashi)	13 (T3-B2)	—	—	Prone to surface checking and honeycombing.
Cynometra spp. (kekatong, myiunga, katong)	56 (T6-D4)	—	F	
Dacrydium elatum (sempilor, srol kraham)	512 (44-43)	—	K	
Dacrydium cupressinum (rimu)	271 (T13-C4S)	258 (T11-D3S)	K	
Dacrydium franklinii (huon-pine)	—	—	K	
Dactylocladus stenostachys (jongkong)	511 (44-34)	—	—	

Index of Schedules for Kiln-Drying Asian and Oceanian Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule 4/4, 5/4, 6/4 stock	U.S. Schedule 8/4 stock	British Schedule[1] 4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		*Code*	
Dalbergia latifolia (Indian rosewood, shisham)	55 (T6-D2)	18 (T3-D1)	E	
Dialium spp. (keranji, khleng)	55 (T6-D2)	—	*E*	
Dillenia spp. (simpoh, katmon, san)	16 (T3-C2)	—	*C*	Prone to warp and end checking.
Diospyros spp. (East Indian ebony, kamagong)	16 (T3-C2)	15 (T3-C1)	C	Black portions prone to checking.
Dipterocarpus insularis (chhoeuteal bangkuoi)	503 (24-24)	—	—	
Dipterocarpus spp. (keruing, apitong)	19 (T3-D2)	18 (T3-D1)	D	Resin exudation common, particularly at high temperatures.
Dryobalanops beccarii (kapur)	—	—	G	Also see table 283 for 4/4-5/4.
Dryobalanops lanceolata (kapur)	245 (T10-D4S)	233 (T8-D3S)	H	Also see table 283 for 4/4-5/4.
Duabanga spp. (magas, lampati)				
standard	271 (T13-C4S)	258 (T11-D3S)	*K*	
for lighter color	246 (T10-D5S)	—	*J*	
Dyera costulata (jelutong)	245 (T10-D4S)	233 (T8-D3S)	H	Also see table 283 for 4/4-5/4.
Endiandra palmerstonii (orientalwood, Queensland-walnut)	55 (T6-D2)	18 (T3-D1)	E	End coating is suggested to avoid splitting.
Endospermum spp. (gubas, kauvula)	246 (T10-D5S)	234 (T8-D4S)	*J*	Warp severe in pieces with tension wood.
Eucalyptus delegatensis (Tasmanian-oak)	—	—	C	Air drying prior to kiln drying is suggested, and reconditioning treatment is usually advised.
Eucalyptus deglupta (deglupta, bagras, kamerere)	[4]55 (T6-D2)	—	*E*	Forest grown stock prone to collapse and honeycomb.
Eucalyptus diversicolor (karri)	[4]16 (T3-C2)	415 (T3-C1)	C	Partial air drying prior to kiln drying is suggested.
Eucalyptus globulus (bluegum)	[4]16 (T3-C2)	—	C	Tendency to warp and collapse; reconditioning treatment at 20 percent moisture content is suggested to remove collapse.
Eucalyptus maculata (spotted gum)	—	—	C	
Eucalyptus marginata (jarrah)	[4]16 (T3-C2)	415 (T3-C1)	C	Partial air drying prior to kiln drying is suggested.
Eucalyptus microcorys (tallow-wood)	—	—	C	Air drying prior to kiln drying is suggested.
Eucalyptus obliqua (Tasmanian-oak)	—	—	C	Air drying prior to kiln drying is suggested, and reconditioning treatment is usually advised.
Eucalyptus pilularis (blackbutt, pilularis)	—	—	C	
Eucalyptus regnans (Tasmanian-oak)	—	—	C	Air drying prior to kiln drying is suggested, and reconditioning treatment is usually advised.
Eucalyptus saligna (saligna)	—	—	C	Air drying prior to kiln drying is suggested.
Eucalyptus spp. (ironbark)	—	—	B	Air drying prior to kiln drying is suggested.
Eusideroxylon zwageri (belian, Borneo ironwood)	6 (T2-C2)	5 (T2-C1)	B	
Fagus crenata (buna, Japanese beech)	45 (T5-D3)	—	—	Tendency to warp and discolor.
Flindersia brayleyana (Queensland maple, silkwood, Australian-maple)	16 (T3-C2)	15 (T3-C1)	C	
Garcinia spp. (kandis, binukau)	6 (T2-C2)	—	*B*	Some species prone to checking and warp.
Gmelina arborea (gmelina, gumhar)	271 (T13-C4S)	258 (T11-D3S)	*K*	
Gonystylus spp. (ramin)	16 (T3-C2)	5 (T2-C1)	C	Use British Schedule B if more than 1-1/2 inches thick.
Grevillea robusta (silky-oak, lacewood, grevillea)	16 (T3-C2)	15 (T3-C1)	C	Some people develop skin rash when working green or dry wood.
Heritiera spp. (mengkulang, kembang) Syn. *Tarrietia* spp.	504 (32-22)	—	H	
Homalium foetidum (malas, Burma lacewood)	500 (11-12)	—	—	
Hopea spp. (thingan, merawan)	16 (T3-C2)	15 (T3-C1)	C	
Intsia bijuga (merbau, ipil)	16 (T3-C2)	15 (T3-C1)	C	
Intsia palembanica (merbau, ipil)	16 (T3-C2)	15 (T3-C1)	C	
Kalopanax pictus (sen)	80 (T8-D4)	—	—	
Knema spp. (darah darah)	245 (T10-D4S)	—	*H*	

Index of Schedules for Kiln-Drying Asian and Oceanian Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule 4/4, 5/4, 6/4 stock	U.S. Schedule 8/4 stock	British Schedule[1] 4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		- - - - *Code* - - - -	
Koompassia excelsa (menggeris)	502 (22-22)	—	E	
Koompassia malaccensis (kempas, impas)	55 (T6-D2)	18 (T3-D1)	E	Also see table 289 for 4/4-5/4.
Koordersiondendron pinnatum (ranggu, amugis)	271 (T13-C4S)	258 (T11-D3S)	*K*	Tendency to splitting and cupping.
Larix leptolepis (Japanese larch, karamatsu)	244 (T10-C4S)	—	H	
Litsea spp. (litsea)	513 (52-35)	—	—	
Metrosideros collina subsp. polymorpha (ohia)	16 (T3-C2)	—	*C*	Partial air drying prior to kiln drying is suggested.
Myristica spp. (darah darah)	245 (T10-D4S)	—	*H*	
Nothofagus spp. (Tasmanian-myrtle, silver beech)				Prone to collapse, internal checking, and warp. Air drying prior to kiln drying is suggested.
Australian material	16 (T3-C2)	—	C	
silver beech-New Zealand	55 (T6-D2)	—	E	
Octomeles sumatrana (binuang)	16 (T3-C2)	15 (T3-C1)	C	
Ostrya japonica (asada)	74 (T8-C3)	—	—	
Palaquium spp. (nyatoh, nato)	55 (T6-D2)	18 (T3-D1)	E	
Parashorea spp. (white seraya, bagtikan)	246 (T10-D5S)	234 (T8-D4S)	J	
Paulownia tomentosa (kiri paulownia)	104 (T11-D5)	—	—	
Payena spp. (nyatoh, nato)	55 (T6-D2)	18 (T3-D1)	E	
Pentace spp. (thitka, melunak, takalis)	55 (T6-D2)	18 (T3-D1)	E	
Pentacme burmanica (thitka)	—	—	E	
Pentacme contorta (white luan)	55 (T6-D2)	18 (T3-D1)	E	
Picea jezoensis (yezomatsu)	274 (T14-D6S)	—	—	
Pinus densiflora (akamatsu)	259 (T11-D4S)	—	—	
Pinus radiata (radiata pine)	271 (T13-C4S)	254 (T11-C3S)	K	
Planchonella spp. (planchonella)	508 (42-42)	—	—	
Planchonia spp. (putat paya, lamog)	6 (T2-C2)	3 (T2-C1)	*B*	Very difficult to season; prone to warp, checking, and collapse. Suggest air dry to 25 percent moisture content prior to kiln drying.
Podocarpus spp. (tolara, thitmin)	246 (T10-D5S)	234 (T8-D4S)	J	
Pometia pinnata (taun)	505 (33-32)	—	—	
Pseudosindora palustris (sepetir) and *Sindora* spp	70 (T8-B3)	34 (T5-B1)	G	
Pterocarpus dalbergioides (Andaman padauk, Vermillion wood)	56 (T6-D4)	20 (T3-D3)	F	
Pterocarpus macrocarpus (Burma padauk)	56 (T6-D4)	20 (T3-D3)	F	
Pterocymbium beccarii (amberoy)	514 (52-53)	—	—	
Quercus magnolica var. grosseserrata (mizunara)	27 (T4-C2)	15 (T3-C1)	C	Prone to surface checking and honeycombing.
Sandoricum indicum (katon)	—	—	E	
Shorea spp. (balau group)	70 (T8-B3)	34 (T5-B1)	*G*	
Shorea spp. (dark red meranti - red lauan group)	56 (T6-D4)	20 (T3-D3)	F	Also see table 289 for 4/4-5/4.
Shorea spp. (light red meranti - light red lauan group)	56 (T6-D4)	20 (T3- D3)	*F*	Also see table 289 for 4/4-5/4.
Shorea spp. (white meranti group)	56 (T6-D4)	20 (T3-D3)	*F*	Also see table 289 for 4/4-5/4.
Shorea spp. (yellow meranti group)	246 (T10-D5S)	234 (T8-D4S)	J	
Spondias spp. (spondias)	515 (53-51)	—	—	
Syncarpia glomulifera (turpentine)	16 (T3-C2)	15 (T3-C1)	C	Air drying prior to kiln drying is suggested.
Tarrietia cochinchinensis (chumprak)	—	—	C	
Tectona grandis (teak)	245 (T10-D4S)	233 (T8-D3S)	H	
Terminalia bialata (white chuglam)	55 (T6-D2)	18 (T3-D1)	E	
Terminalia procera (white Bombay)	55 (T6-D2)	18 (T3-D1)	E	
Terminalia tomentosa complex (Indian laurel)	16 (T3-C2)	15 (T3-C1)	C	Prone to checking, warp, and end splitting, especially large dimensions.

Index of Schedules for Kiln-Drying Asian and Oceanian Woods—con.

	U.S. Schedule		British Schedule[1]	
Botanical name (common name(s)[2])	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		· · · · *Code* · · · ·	
Tetramerista glabra (punah, entuyut, tuyot)	16 (T3-C2)	15 (T3-C1)	C	Prone to warp and end checking.
Tilia japonica (shinanoki)	106 (T12-E7)	—	—	
Tristania spp. (brush box, rong leang)	16 (T3-C2)	15 (T3-C1)	C	Prone to warping, checking, and collapse; air drying prior to kiln drying is suggested.
Tsuga sieboldii (tsuga)	244 (T10-C4S)	—	—	Prone to water pockets.
Vatica spp. (resak)	501 (14-15)	—	—	
Xylia xylocarpa (pyinkado, pyin)	16 (T3-C2)	15 (T3-C1)	C	

[1] *Source*: Timber drying manual, G. H. Pratt, 1974. See appendix E for listing of assembled schedules. Italicized letters refer to nearest British equivalent to U.S. schedule.

[2] See appendix D for common name index.

[3] Occasionally the letter "S" follows a kiln schedule code, e.g., T10-D5S. This refers to general wet-bulb depression schedules for the softwoods or conifers and is sometimes suggested as well for drying certain hardwoods.

[4] Schedules are for Australian forest-grown material; some modification may be desirable for plantation-grown material.

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Section V.
African Woods—
Conventional and Elevated Temperatures

Schedules in this section are gathered from the world literature. Because of the wide variation found within a species, these schedules are considered conservative. They are intended for use in steam-heated kilns operated between 95 and 195 °F (35 and 90 °C), with air speeds through the lumber from 200 to 400 feet per minute (1 to 2 m/sec). Changes in instrument settings are generally made on the basis of MC of the wood, and the use of sample boards is **highly recommended** (see app. B). In a few instances, time schedules are also suggested for a given species.

Schedules are listed for two thickness groups, 4/4 to 6/4 and 8/4 using U.S. schedule format, and for 4/4 to 6/4 stock by the British schedule. Where available from the British Timber Drying Manual, the standard kiln-drying schedule is listed in Roman type. When not available from British sources, the nearest British equivalent to the U.S. schedule is given in italicized type. In some cases where only British schedules had been published, the nearest U.S. schedule equivalent is given. Assembled British standard kiln- drying schedules are printed in appendix E. Thus, operators can use either the U.S. schedule or the British, depending on their preference and experience.

Index of Schedules for Kiln-Drying African Woods

Botanical name (common name(s)[2])	U.S. Schedule		British Schedule[1]	Comments
	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	
	Table No. (schedule code)		. . . . *Code*	
Afzelia spp. (afzelia, doussie)	55 (T6-D2)	18 (T3-D1)	E	
Albizia grandibracteata (nongo)	—	—	F	
Albizia spp. (albizzia, West African albizzia)	56 (T6-D4)	20 (T3-D3)	F	
Alstonia congensis (alstonia)	245 (T10-D4S)[3]	233 (T8-D3S)[3]	H	
Amblygonocarpus andongensis (banga wanga)	—	—	B	
Androstachys johnsonii (mecrusse)	19 (T3-D2)	—	*D*	
Aningeria spp. (aningeria, anegre, landosan)	56 (T6-D4)	18 (T3-D1)	C	
Antiaris spp. (antiaris, kyenkyen, oro, ako)	8 (T2-D4)	7 (T2-D3)	A	Marked tendency to warp, particularly twist.
Anodytes dimidiata (mugonyone)	—	—	C	
Aucoumea klaineana (okoumé, gaboon, angouma)	55 (T6-D2)	18 (T3-D1)	E	
Baikiaea insignis subsp. *minor* (nkobakoba)	16 (T3-C2)	15 (T3-C1)	D	
Baikiaea plurijuga (Rhodesian teak, Zambesi redwood)	19 (T3-D2)	18 (T3-D1)	D	
Berlinia spp. (berlinia, ekpogoi, ebiara)	55 (T6-D2)	18 (T3-D1)	E	
Bombax spp. (bombax, alone, mfume)	50 (T6-B3)	—	*E*	Marked tendency to cup, sometimes with collapse, honeycomb and checking.
Bosquiea phoberos (mugwi)	—	—	J	
Brachylaena hutchinsii (muhuhu, muhugive)	6 (T2-C2)	5 (T2-C1)	B	
Brachystegia boehmii (mjombo)	—	—	C	
Brachystegia spiciformis (mtundu, messassa)	16 (T3-C2)	15 (T3-C1)	C	
Brachystegia spp. (okwen)	55 (T6-D2)	18 (T3-D1)	E	Marked tendency to check and warp.
Burkea africana (burkea, maccarati)	—	—	B	
Canarium schweinfurthii (African canarium)	245 (T10-D4S)	233 (T8-D3S)	H	
Casearia battiscombei (muirungi)	8 (T2-D4)	7 (T2-D3)	—	
Cassipourea malosana (pillarwood)	8 (T2-D4)	7 (T2-D3)	A	Subject to severe twist.
Ceiba pentandra (ceiba, silk-cotton-tree)	245 (T10-D4S)	234 (T8-D4S)	J	
Celtis spp. (African celtis)	245 (T10-D4S)	234 (T8-D4S)	*H*	
Cephalosphaera usambarensis (mtambara)	246 (T10-D5S)	234 (T8-D4S)	J	
Chlorophora excelsa (iroko)	55 (T6-D2)	18 (T3-D1)	E	
Chlorophora regia (iroko)	55 (T6-D2)	18 (T3-D1)	E	
Chrysophyllum albidium (white star apple)	—	—	E	
Combretodendron macrocarpum (essia, abale)	6 (T2-C2)	—	B	Prone to warp and check; thick stock liable to collapse and honeycomb.
Cordia millenii (West African cordia)	271 (T13-C4S)	258 (T11-D3S)	*K*	
Cordia platythyrsa (West African cordia)	271 (T13-C4S)	258 (T11-D3S)	*K*	
Croton megalocarpus (musine)	16 (T3-C2)	15 (T3-C1)	C	
Cylicodiscus gabunensis (okan)	6 (T2-C2)	5 (T2-C1)	B	
Cynometra alexandri (muhimbi)	6 (T2-C2)	5 (T2-C1)	B	
Dalbergia melanoxylon (African blackwood)	6 (T2-C2)	5 (T2-C1)	B	End-coat logs or billets.
Daniellia ogea (ogea, daniellia)	246 (T10-D5S)	234 (T8-D4S)	J	
Daniellia thurifera (ogea, daniellia)	246 (T10-D5S)	234 (T8-D4S)	J	
Diospyros spp. (African ebony)	55 (T6-D2)	18 (T3-D1)	E	
Distemonanthus benthamianus (ayan movingui)	56 (T6-D4)	20 (T3-D3)	F	
Entandrophragma angolense (gedu nohor)	8 (T2-D4)	7 (T2-D3)	A	Marked tendency to warp.
Entandrophragma candollei (kosipo)	8 (T2-D4)	7 (T2-D3)	A	Marked tendency to warp.
Entandrophragma cylindricum (sapele)	8 (T2-D4)	7 (T2-D3)	A	Marked tendency to warp.
Entandrophragma utile (utile, sipo)	8 (T2-D4)	7 (T2-D3)	A	Marked tendency to warp.
Erythrophleum guineense (missanda)	19 (T3-D2)	18 (T3-D1)	D	
Erythrophleum ivorense (missanda)	19 (T3-D2)	18 (T3-D1)	D	
Erythroxylum manii (landa)	55 (T6-D2)	18 (T3-D1)	E	

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Index of Schedules for Kiln-Drying African Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule 4/4, 5/4, 6/4 stock	U.S. Schedule 8/4 stock	British Schedule[1] 4/4, 5/4, 6/4 stock	Comments
	Table No. (schedule code)		Code	
Fagara macrophylla (East African satinwood)	16 (T3-C2)	15 (T3-C1)	C	
Fagaropsis angolensis (mafu)	16 (T3-C2)	15 (T3-C1)	C	
Ficalhoa laurifolia (mkuka)	—	—	F	
Gambeya africana (longui)	55 (T6-D2)	18 (T3-D1)	E	
Gonioma kamassi (kamassi)	16 (T3-C2)	15 (T3-C1)	C	
Gossweilerodendron balsamiferum (agba, tola)	246 (T10-D5S)	234 (T8-D4S)	J	
Guarea cedrata (guarea, bosse)	55 (T6-D2)	18 (T3-D1)	E	
Guarea thompsonii (guarea, bosse)	55 (T6-D2)	18 (T3-D1)	E	
Guibourtia arnoldiana (mutenye, benge)	16 (T3-C2)	15 (T3-C1)	C	
Guibourtia spp. (bubinga)	6 (T2-C2)	5 (T2-C1)	B	
Hannoa klaineana (effeu, fotie)	—	—	L	
Holoptelea grandis (mumuli)	—	—	C	
Isoberlinia globifora (mchenga)	—	—	C	
Isoberlinia schaffieri (mbarika)	55 (T6-D2)	18 (T3-D1)	—	
Juniperus procera (African pencil cedar)	70 (T8-B3)	34 (T5-B1)	G	
Khaya anthotheca (African mahogany)	56 (T6-D4)	20 (T3-D3)		
Khaya gradifoliola (African mahogany, Benin mahogany, Senegal mahogany)	8 (T2-D4)	7 (T2-D3)	A	
Khaya ivorensis (African mahogany)	56 (T6-D4)	20 (T3-D3)	F	
Khaya senegalensis (Benin mahogany, African mahogany, Senegal mahogany)	8 (T2-D4)	7 (T2-D3)	A	
Lophira alata (ekki, azobé)	6 (T2-C2)	5 (T2-C1)	B	Strong tendency to surface and end-checking.
Lovoa trichilioides (African walnut, lovoa, tigerwood)	55 (T6-D2)	18 (T3-D1)	E	
Maesopsis eminii (musizi)	56 (T6-D4)	20 (T3-D3)	F	
Mansonia altissima (mansonia)	245 (T10-D4S)	233 (T8-D3S)	H	
Microberlinia brazzavillensis (zebrawood, zebrano)	6 (T2-C2)	5 (T2-C1)	B	Difficult to season without warping.
Millettia spp. (panga panga, wenge)	55 (T6-D2)	18 (T3-D1)	E	
Mitragyna ciliata (abura)	271 (T13-C4S)	258 (T11-D3S)	K	
Nauclea diderrichii (opepe)	55 (T6-D2)	18 (T3-D1)	E	
Nesogordonia papaverifera (dania)	55 (T6-D2)	18 (T3-D1)	E	
Newtonia buchananii (muchenche)	—	—	J	
Ocotea usambarensis (East African camphorwood)	70 (T8-B3)	34 (T5-B1)	G	
Olea hochstetteri (East African olive)	55 (T6-D2)	18 (T3-D1)	E	Strong tendency to check and warp.
Olea welwitschii (loliondo)	—	—	E	
Oxystigma oxyphyllum (tchitola)	44 (T5-D2)	—	—	
Parinari excelsa (sougué, mubura)	6 (T2-C2)	—	B	Air drying prior to kiln drying is suggested.
Pericopsis elata Syn. *Afromosia elata* (afromosia, kokrodua)	246 (T10-D5S)	234 (T8-D4S)	J	
Piptadeniastrum africanum (dahoma) Syn. *Piptadenia africana*	8 (T2-D4)	7 (T2-D3)	A	Air drying prior to kiln drying is suggested.
Podocarpus spp. (podo)	8 (T2-D4)	7 (T2-D3)	A	
Pterocarpus angolensis (muninga)	246 (T10-D5S)	234 (T8-D4S)	J	
Pterocarpus soyauxii (African padauk)	246 (T10-D5S)	234 (T8-D4S)	J	
Pterygota spp. (pterygota, koto)	245 (T10-D4S)	233 (T8-D3S)	H	
Pycnanthus angolensis (ilomba)	16 (T3-C2)	15 (T3-C1)	C	Prone to collapse, warp, and splitting.
Pygeum africanum (mueri)	—	—	C	
Quercus castaneaefolia (Persian oak)	—	—	B	

33

Index of Schedules for Kiln-Drying African Woods—con.

Botanical name (common name(s)[2])	U.S. Schedule		British Schedule[1]	Comments
	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	
	Table No. (schedule code)		*Code*	
Ricinodendron rautanenii (mugongo)	—	—	K	
Scottellia coriacea (odoko)	55 (T6-D2)	18 (T3-D1)	E	Tendency to surface and end-check.
Sterculia oblonga (yellow sterculia)	16 (T3-C2)	15 (T3-C1)	C	Marked tendency to surface- and end-checking, cupping, and collapse.
Sterculia rhinopetala (brown sterculia)	6 (T2-C2)	5 (T2-C1)	B	Tendency to cupping, end-checking, and collapse.
Tarrientia densiflora (niangon)	55 (T6-D2)	18 (T3-D1)	E	
Tarrietia utilis (niangon)	55 (T6-D2)	18 (T3-D1)	E	
Tectona grandis (teak)	245 (T10-D4S)	233 (T8-D3S)	H	
Terminalia ivorensis (idigbo, black afara)	246 (T10-D5S)	234 (T8-D4S)	J	
Terminalia superba (afara, limba, "Korina")	246 (T10-D5S)	234 (T8-D4S)	J	
Tieghemella heckelii (makoré, douka)	245 (T10-D4S)	233 (T8-D3S)	H	
Triplochiton scleroxylon (obeche)	273 (T14-C5S)	267 (T12-C5S)	L	
Turreanthus africanus (avodiré)	55 (T6-D2)	18 (T3-D1)	E	
Vitex doniana (vitex, meru-oak)	16 (T3-C2)	15 (T3-C1)	*C*	

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[1] *Source*: Timber drying manual, G. H. Pratt, 1974. See appendix E for listing of assembled schedules. Italicized letters refer to nearest British equivalent to U.S. schedule.

[2] See appendix D for common name index.

[3] Occasionally the letter "S" follows a kiln schedule code, e.g., T10-D5S. This refers to general wet-bulb depression schedules for the softwoods or conifers and is sometimes suggested as well for drying certain hardwoods.

Section VI.
European Woods—Conventional and Elevated Temperatures

Schedules in this section are primarily from the British publication *Timber Drying Manual*. These schedules are considered conservative. They are intended for use in steam-heated kilns operated between 95 and 200 °F (35 and 93 °C), with air speeds through the lumber from 200 to 400 feet per minute (1 to 2 m/sec). Changes in instrument settings are generally made on the basis of moisture content of the wood, and the use of sample boards is **highly recommended** (see app. B).

Schedules are listed for 4/4 to 6/4 stock by the British sources, and, where available, by two thickness groups, 4/4 to 6/4 and 8/4 using the U.S. schedule format. Assembled British standard kiln-drying schedules are printed in appendix E.

Index of Schedules for Kiln-Drying European Woods

	U.S. Schedule		British Schedule[1]	
Botanical name (common name(s)[2])	4/4, 5/4, 6/4 stock	8/4 stock	4/4, 5/4, 6/4 stock	Comments
	Table no. (schedule code)		*Code*	
Abies alba (European silver fir)	—	—	K	
Acer platanoides (Norway maple)	—	—	E	
Acer pseudoplatanus (European sycamore)				
standard	55 (T6-D2)	18 (T3-D1)	E	
for lighter color	8 (T2-D4)	7 (T2-D3)	A	
Aesculus hippocastanum (European horse chestnut)	245 (T10-D4S)[3]	233 (T8-D3S)[3]	H	
Alnus glutinosa (European alder)	—	—	J	
Betula pubescens (European birch)	—	—	F	
Betula verrucosa (European birch)	—	—	F	
Buxus macowani (Cape box, East London box)	—	—	B	
Buxus sempervirens (European box)	—	—	B	
Carpinus betulus (European hornbeam)	—	—	E	
Castanea sativa (European sweet chestnut)	—	—	D	
Fagus sylvatica (European beech)	—	—	D	Frequently steamed to obtain red color.
Fraxinus spp. (European ash)	—	—	D	
Ilex aquifolium (European holly)	—	—	C	
Juglans regia (European walnut)	55 (T6-D2)	18 (T3-D1)	E	
Larix decidua (European larch)	—	—	H	
Larix russica (Siberian larch)	—	—	H	
Malus sylvestris (European apple)	—	—	A	
Picea abies (European spruce)	—	—	K	
Pinus nigra (Austrian pine)	274 (T14-D6S)	268 (T12-D5S)	M	
Pinus nigra var. *maritima* (Corsican pine)	—	—	M	
Pinus pinaster (maritime pine)	—	—	M	
Pinus sylvestris (Scots pine, deal, European redwood)	274 (T14-D6S)	268 (T12-D5S)	M	
Platanus hybrida (London plane)	—	—	E	
Populus alba (white poplar)	55 (T6-D2)	18 (T3-D1)	E	
Populus canadensis var. *serotina* (Italian black poplar)	55 (T6-D2)	18 (T3-D1)	E	
Populus nigra (European black poplar)	55 (T6-D2)	18 (T3-D1)	*E*	
Populus tremula (European aspen)	—	—	E	
Prunus avium (European cherry)	—	—	A	
Pyrus communis (European pear)	—	—	A	
Quercus petraea (European oak)	16[a] (T3-C2)	15 (T3-C1)	C	[a] For 6/4, use table 15.
Quercus robur (European oak)	16[a] (T3-C2)	15 (T3-C1)	C	
Salix spp. (European willow)	—	—	H	
Taxus baccata (European yew)	—	—	G	
Tilia vulgaris (European lime)	—	—	H	
Ulmus glabra (wych elm)	—	—	A	
Ulmus hollandica (Dutch elm)	—	—	A	
Ulmus procera (European elm)	—	—	A	

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[1] *Source*: Timber drying manual, G. H. Pratt, 1974. See appendix E for listing of assembled schedules. Italicized letters refer to nearest British equivalent to U.S. schedule.

[2] See appendix D for common name index.

[3] Occasionally the letter "S" follows a kiln schedule code, e.g., T10-D5S. This refers to general wet-bulb depression schedules for the softwoods or conifers and is sometimes suggested as well for drying certain hardwoods.

Section VII.
Tables of Assembled Dry Kiln Schedules

Conventional and Elevated Temperature Schedules: Hardwoods (Tables 1-123)

This group of tables contains schedules suggested for use with hardwood lumber and specialty products. These schedules are typically used with steam-heated dry kilns. Change points are based on moisture content of sample boards.

In several of the schedule headings, the word "modified" appears in parentheses after the coded designation, e.g., Table 2, T1-C2 (Modified). This means we have modified the suggested schedule(s) from Agriculture Handbook 188, *Dry Kiln Operator's Manual*,so that the wet-bulb temperature (WBT) is never less than 90 °F. During periods of hot humid weather, it may not be possible to achieve WBT's below 90 °F even with continuous venting. When energy conservation is a prime consideration, continuous venting may not be the best overall alternative as heat is lost in this process of controlling the WBT or relative humidity in the kiln. As a practical approach, we have suggested limiting the minimum WBT to 90 °F.

Most schedules have dry-bulb temperatures between 100 and 180 °F, though a few may go as high as 200 °F.

Table 1 **T1-B1 (Modified)**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 35	100	97	19.5	90	37.5	36.0
2	35 to 30	100	96	17.6	86	37.5	35.5
3	30 to 25	105	99	15.4	81	40.5	37.0
4	25 to 20	105	95	12.0	69	40.5	35.0
5	20 to 15	115	90	6.4	38	46.0	32.0
6	15 to Final	120	90	5.5	32	49.0	32.0

Equalize and condition as necessary (see appendix A).

Table 2 **T1-C2 (Modified)**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 40	100	96	17.6	86	37.5	35.5
2	40 to 35	100	95	16.4	83	37.5	35.0
3	35 to 30	100	92	13.4	74	37.5	33.5
4	30 to 25	105	91	9.7	58	40.5	32.5
5	25 to 20	105	90	9.4	56	40.5	32.0
6	20 to 15	115	90	6.4	38	46.0	32.0
7	15 to Final	120	90	5.5	32	49.0	32.0

Equalize and condition as necessary (see appendix A).

Table 3 **T1-D2 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	100	96	17.6	86	37.5	35.5
2	50 to 40	100	95	16.4	83	37.5	35.0
3	40 to 35	100	92	13.4	74	37.5	33.5
4	35 to 30	100	90	11.9	68	37.5	32.0
5	30 to 25	105	90	9.4	56	40.5	32.0
6	25 to 20	105	90	9.4	56	40.5	32.0
7	20 to 15	115	90	6.4	38	46.0	32.0
8	15 to Final	120	90	5.5	32	49.0	32.0

Equalize and condition as necessary (see appendix A).

Table 4 **T2-B2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	100	96	17.6	86	37.5	35.5
2	35 to 30	100	95	16.4	83	37.5	35.0
3	30 to 25	110	102	13.6	76	43.5	39.0
4	25 to 20	120	106	9.9	62	49.0	41.0
5	20 to 15	130	100	5.7	35	54.5	37.5
6	15 to Final	150	100	3.2	18	65.5	37.5

Equalize and condition as necessary (see appendix A).

Table 5 **T2-C1 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	100	97	19.5	90	37.5	36.0
2	40 to 35	100	96	17.6	86	37.5	35.5
3	35 to 30	100	94	15.3	80	37.5	34.5
4	30 to 25	110	100	12.0	70	43.5	37.5
5	25 to 20	120	95	6.5	40	49.0	35.0
6	20 to 15	130	90	4.0	22	54.5	32.0
7	15 to 11	150	105	3.8	23	65.5	40.5
8	11 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 6 **T2-C2 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	100	96	17.6	86	37.5	35.5
2	40 to 35	100	95	16.4	83	37.5	35.0
3	35 to 30	100	92	13.4	74	37.5	33.5
4	30 to 25	110	96	9.9	60	43.5	35.5
5	25 to 20	120	90	5.5	32	49.0	32.0
6	20 to 15	130	90	4.0	22	54.5	32.0
7	15 to Final	150	100	3.2	18	65.5	37.5

Equalize and condition as necessary (see appendix A).

Table 7 **T2-D3 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	100	95	16.4	83	37.5	35.0
2	50 to 40	100	93	14.3	77	37.5	34.0
3	40 to 30	100	90	11.9	68	37.5	32.0
4	30 to 25	110	90	7.6	46	43.5	32.0
5	25 to 20	120	90	5.5	32	49.0	32.0
6	20 to 15	130	90	4.0	22	54.5	32.0
7	15 to Final	150	100	3.2	18	65.5	37.5

Equalize and condition as necessary (see appendix A).

Table 8 **T2-D4 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	100	93	14.3	77	37.5	34.0
2	50 to 40	100	90	11.9	68	37.5	32.0
3	40 to 30	100	90	11.9	68	37.5	32.0
4	30 to 25	110	90	7.6	46	43.5	32.0
5	25 to 20	120	90	5.5	32	49.0	32.0
6	20 to 15	130	90	4.0	22	54.5	32.0
7	15 to Final	150	100	3.2	18	65.5	37.5

Equalize and condition as necessary (see appendix A).

Table 9 **T3-A1**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 30	110	107	19.1	90	43.5	41.5
2	30 to 25	120	116	17.6	88	49.0	46.5
3	25 to 20	130	124	15.4	84	54.5	51.0
4	20 to 15	140	130	12.0	75	60.0	54.5
5	15 to 10	160	135	6.8	51	71.0	57.0
6	10 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 10 **T3-A2**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 30	110	106	17.6	87	43.5	41.0
2	30 to 25	120	115	16.3	85	49.0	46.0
3	25 to 20	130	122	13.3	78	54.5	50.0
4	20 to 15	140	126	10.0	66	60.0	52.0
5	15 to 10	160	130	5.8	43	71.0	54.5
6	10 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 11 **T3-A3**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 30	110	105	16.3	84	43.5	40.5
2	30 to 25	120	113	14.4	80	49.0	45.0
3	25 to 20	130	119	11.5	71	54.5	48.5
4	20 to 15	140	121	8.3	57	60.0	49.5
5	15 to 10	160	125	5.1	37	71.0	51.5
6	10 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 12 **T3-B1**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	110	107	19.1	90	43.5	41.5
2	35 to 30	110	106	17.6	87	43.5	41.0
3	30 to 25	120	114	15.5	83	49.0	45.5
4	25 to 20	130	120	12.2	74	54.5	49.0
5	20 to 15	140	115	6.8	46	60.0	46.0
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 13 **T3-B2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	110	106	17.6	87	43.5	41.0
2	35 to 30	110	105	16.3	84	43.5	40.5
3	30 to 25	120	112	13.5	77	49.0	44.5
4	25 to 20	130	116	10.1	65	54.5	46.5
5	20 to 15	140	110	5.8	38	60.0	43.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 14 **T3-B3**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	110	105	16.3	84	43.5	40.5
2	35 to 30	110	103	14.2	78	43.5	39.5
3	30 to 25	120	109	11.6	70	49.0	42.5
4	25 to 20	130	111	8.2	54	54.5	44.0
5	20 to 15	140	105	4.9	31	60.0	40.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 15 **T3-C1**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	110	107	19.1	90	43.5	41.5
2	40 to 35	110	106	17.6	87	43.5	41.0
3	35 to 30	110	104	15.2	81	43.5	40.0
4	30 to 25	120	110	12.1	72	49.0	43.5
5	25 to 20	130	105	6.7	43	54.5	40.5
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 16 **T3-C2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	110	106	17.6	87	43.5	41.0
2	40 to 35	110	105	16.3	84	43.5	40.5
3	35 to 30	110	102	13.6	76	43.5	39.0
4	30 to 25	120	106	9.9	62	49.0	41.0
5	25 to 20	130	100	5.7	35	54.5	37.5
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 17 **T3-C3**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	110	105	16.3	84	43.5	40.5
2	40 to 35	110	103	14.2	78	43.5	39.5
3	35 to 30	110	99	11.6	68	43.5	37.0
4	30 to 25	120	101	8.2	52	49.0	38.5
5	25 to 20	130	95	4.8	28	54.5	35.0
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 18 **T3-D1 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	110	107	19.1	90	43.5	41.5
2	50 to 40	110	106	17.6	87	43.5	41.0
3	40 to 35	110	104	15.2	81	43.5	40.0
4	35 to 30	110	100	12.0	70	43.5	37.5
5	30 to 25	120	95	6.5	40	49.0	35.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 19 **T3-D2 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	110	106	17.6	87	43.5	41.0
2	50 to 40	110	105	16.3	84	43.5	40.5
3	40 to 35	110	102	13.6	76	43.5	39.0
4	35 to 30	110	96	9.9	60	43.5	35.5
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 20 **T3-D3 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	110	105	16.3	84	43.5	40.5
2	50 to 40	110	103	14.2	78	43.5	39.5
3	40 to 35	110	99	11.6	68	43.5	37.0
4	35 to 30	110	91	7.9	48	43.5	32.5
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 21 **T3-D4 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 50	110	103	14.2	78	43.5	39.5
2	50 to 40	110	100	12.0	70	43.5	37.5
3	40 to 35	110	95	9.5	58	43.5	35.0
4	35 to 30	110	90	7.6	46	43.5	32.0
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 22 **T3-E1 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 60	110	107	19.1	90	43.5	41.5
2	60 to 50	110	106	17.6	87	43.5	41.0
3	50 to 40	110	104	15.2	81	43.5	40.0
4	40 to 35	110	100	12.0	70	43.5	37.5
5	35 to 30	110	90	7.6	46	43.5	32.0
6	30 to 25	120	90	5.5	32	49.0	32.0
7	25 to 20	130	90	4.0	22	54.5	32.0
8	20 to 15	140	90	2.9	15	60.0	32.0
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 23 **T4-B2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 35	110	106	17.6	87	43.5	41.0
2	35 to 30	110	105	16.3	84	43.5	40.5
3	30 to 25	120	112	13.5	77	49.0	44.5
4	25 to 20	130	116	10.1	65	54.5	46.5
5	20 to 15	140	110	5.8	38	60.0	43.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 24 **T4-B3**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 35	110	105	16.3	84	43.5	40.5
2	35 to 30	110	103	14.2	78	43.5	39.5
3	30 to 25	120	109	11.6	70	49.0	42.5
4	25 to 20	130	111	8.2	54	54.5	44.0
5	20 to 15	140	105	4.9	31	60.0	40.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 25 **T4-B4**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 35	110	103	14.2	78	43.5	39.5
2	35 to 30	110	100	12.0	70	43.5	37.5
3	30 to 25	120	105	9.6	60	49.0	40.5
4	25 to 20	130	105	6.7	43	54.5	40.5
5	20 to 15	140	100	4.2	25	60.0	37.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 26 **T4-C1**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	110	107	19.1	90	43.5	41.5
2	40 to 35	110	106	17.6	87	43.5	41.0
3	35 to 30	110	104	15.2	81	43.5	40.0
4	30 to 25	120	110	12.1	72	49.0	43.5
5	25 to 20	130	105	6.7	43	54.5	40.5
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 27 **T4-C2**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	110	106	17.6	87	43.5	41.0
2	40 to 35	110	105	16.3	84	43.5	40.5
3	35 to 30	110	102	13.6	76	43.5	39.0
4	30 to 25	120	106	9.9	62	49.0	41.0
5	25 to 20	130	100	5.7	35	54.5	37.5
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 28 **T4-C3**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	110	105	16.3	84	43.5	40.5
2	40 to 35	110	103	14.2	78	43.5	39.5
3	35 to 30	110	99	11.6	68	43.5	37.0
4	30 to 25	120	101	8.2	52	49.0	38.5
5	25 to 20	130	95	4.8	28	54.5	35.0
6	20 to 15	140	90	2.9	15	60.0	32.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 29 **T4-D2 (Modified)**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 50	110	106	17.6	87	43.5	41.0
2	50 to 40	110	105	16.3	84	43.5	40.5
3	40 to 35	110	102	13.6	76	43.5	39.0
4	35 to 30	110	96	9.9	60	43.5	35.5
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 30 **T4-D3 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	110	105	16.3	84	43.5	40.5
2	50 to 40	110	103	14.2	78	43.5	39.5
3	40 to 35	110	99	11.6	68	43.5	37.0
4	35 to 30	110	91	7.9	48	43.5	32.5
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 31 **T4-D4 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	110	103	14.2	78	43.5	39.5
2	50 to 40	110	100	12.0	70	43.5	37.5
3	40 to 35	110	95	9.5	58	43.5	35.0
4	35 to 30	110	90	7.6	46	43.5	32.0
5	30 to 25	120	90	5.5	32	49.0	32.0
6	25 to 20	130	90	4.0	22	54.5	32.0
7	20 to 15	140	90	2.9	15	60.0	32.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 32 **T4-E2 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	110	106	17.6	87	43.5	41.0
2	60 to 50	110	105	16.3	84	43.5	40.5
3	50 to 40	110	102	13.6	76	43.5	39.0
4	40 to 35	110	96	9.9	60	43.5	35.5
5	35 to 30	110	90	7.6	46	43.5	32.0
6	30 to 25	120	90	5.5	32	49.0	32.0
7	25 to 20	130	90	4.0	22	54.5	32.0
8	20 to 15	140	90	2.9	15	60.0	32.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 33 T5-A3

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 30	120	115	16.3	85	49.0	46.0
2	30 to 25	130	123	14.3	81	54.5	50.5
3	25 to 20	140	129	11.5	73	60.0	54.0
4	20 to 15	150	131	8.3	59	65.5	55.0
5	15 to 10	160	125	5.1	37	71.0	51.5
6	10 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 34 T5-B1

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	120	117	19.1	91	49.0	47.0
2	35 to 30	120	116	17.6	88	49.0	46.5
3	30 to 25	130	124	15.4	84	54.5	51.0
4	25 to 20	140	130	12.0	75	60.0	54.5
5	20 to 15	150	125	6.8	49	65.5	51.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 35 T5-B2

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	120	116	17.6	88	49.0	46.5
2	35 to 30	120	115	16.3	35	49.0	46.0
3	30 to 25	130	122	13.3	78	54.5	50.0
4	25 to 20	140	126	10.0	66	60.0	52.0
5	20 to 15	150	120	5.8	41	65.5	49.0
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 36 T5-B3

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	120	115	16.3	85	49.0	46.0
2	35 to 30	120	113	14.4	80	49.0	45.0
3	30 to 25	130	119	11.5	71	54.5	48.5
4	25 to 20	140	121	8.3	57	60.0	49.5
5	20 to 15	150	115	5.0	34	65.5	46.0
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 37 T5-B4

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	120	113	14.4	80	49.0	45.0
2	35 to 30	120	110	12.1	72	49.0	43.5
3	30 to 25	130	115	9.6	62	54.5	46.0
4	25 to 20	140	115	6.8	46	60.0	46.0
5	20 to 15	150	110	4.4	28	65.5	43.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 38 T5-B5 (Modified)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	120	110	12.1	72	49.0	43.5
2	35 to 30	120	105	9.6	60	49.0	40.5
3	30 to 25	130	110	7.9	52	54.5	43.5
4	25 to 20	140	115	6.8	46	60.0	46.0
5	20 to 15	150	120	5.8	41	65.5	49.0
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 39 **T5-C1**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	120	117	19.1	91	49.0	47.0
2	40 to 35	120	116	17.6	88	49.0	46.5
3	35 to 30	120	114	15.5	83	49.0	45.5
4	30 to 25	130	120	12.2	74	54.5	49.0
5	25 to 20	140	115	6.8	46	60.0	46.0
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 40 **T5-C2**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	120	116	17.6	88	49.0	46.5
2	40 to 35	120	115	16.3	85	49.0	46.0
3	35 to 30	120	112	13.5	77	49.0	44.5
4	30 to 25	130	116	10.1	65	54.5	46.5
5	25 to 20	140	110	5.8	38	60.0	43.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 41 **T5-C3**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	120	115	16.3	85	49.0	46.0
2	40 to 35	120	113	14.4	80	49.0	45.0
3	35 to 30	120	109	11.6	70	49.0	42.5
4	30 to 25	130	111	8.2	54	54.5	44.0
5	25 to 20	140	105	4.9	31	60.0	40.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 42 **T5-C4**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 40	120	113	14.4	80	49.0	45.0
2	40 to 35	120	110	12.1	72	49.0	43.5
3	35 to 30	120	105	9.6	60	49.0	40.5
4	30 to 25	130	105	6.7	43	54.5	40.5
5	25 to 20	140	100	4.2	25	60.0	37.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 43 **T5-C6 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 40	120	105	9.6	60	49.0	40.5
2	40 to 35	120	100	7.9	50	49.0	37.5
3	35 to 30	120	90	5.5	32	49.0	32.0
4	30 to 25	130	90	4.0	22	54.5	32.0
5	25 to 20	140	90	2.9	15	60.0	32.0
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 44 **T5-D2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 50	120	116	17.6	88	49.0	46.5
2	50 to 40	120	115	16.3	85	49.0	46.0
3	40 to 35	120	112	13.5	77	49.0	44.5
4	35 to 30	120	106	9.9	62	49.0	41.0
5	30 to 25	130	100	5.7	35	54.5	37.5
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 45 **T5-D3**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 50	120	115	16.3	85	49.0	46.0
2	50 to 40	120	113	14.4	80	49.0	45.0
3	40 to 35	120	109	11.6	70	49.0	42.5
4	35 to 30	120	101	8.2	52	49.0	38.5
5	30 to 25	130	95	4.8	28	54.5	35.0
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 46 **T5-D5 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 50	120	110	12.1	72	49.0	43.5
2	50 to 40	120	106	9.9	62	49.0	41.0
3	40 to 35	120	100	7.9	50	49.0	37.5
4	35 to 30	120	90	5.5	32	49.0	32.0
5	30 to 25	130	90	4.0	22	54.5	32.0
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 47 **T6-A2**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 30	120	116	17.6	88	49.0	46.5
2	30 to 25	130	125	16.2	86	54.5	51.5
3	25 to 20	140	132	13.5	80	60.0	55.5
4	20 to 15	150	136	9.9	68	65.5	57.5
5	15 to 10	180	150	5.7	47	82.0	65.5
6	10 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 48 T6-A3

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °*F* ------		------ *pct* ------		------ °*C* ------	
1	Above 30	120	115	16.3	85	49.0	46.0
2	30 to 25	130	123	14.3	81	54.5	50.5
3	25 to 20	140	129	11.5	73	60.0	54.0
4	20 to 15	150	131	8.3	59	65.5	55.0
5	15 to 10	180	145	5.0	41	82.0	62.5
6	10 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 49 T6-A4

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °*F* ------		------ *pct* ------		------ °*C* ------	
1	Above 30	120	113	14.4	80	49.0	45.0
2	30 to 25	130	120	12.2	74	54.5	49.0
3	25 to 20	140	125	9.6	64	60.0	51.5
4	20 to 15	150	125	6.8	49	65.5	51.5
5	15 to 10	180	140	4.5	36	82.0	60.0
6	10 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 50 T6-B3

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °*F* ------		------ *pct* ------		------ °*C* ------	
1	Above 35	120	115	16.3	85	49.0	46.0
2	35 to 30	120	113	14.4	80	49.0	45.0
3	30 to 25	130	119	11.5	71	54.5	48.5
4	25 to 20	140	121	8.3	57	60.0	49.5
5	20 to 15	150	115	5.0	34	65.5	46.0
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 51 **T6-C2**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	120	116	17.6	88	49.0	46.5
2	40 to 35	120	115	16.3	85	49.0	46.0
3	35 to 30	120	112	13.5	77	49.0	44.5
4	30 to 25	130	116	10.1	65	54.5	46.5
5	25 to 20	140	110	5.8	38	60.0	43.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 52 **T6-C3**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	120	115	16.3	85	49.0	46.0
2	40 to 35	120	113	14.4	80	49.0	45.0
3	35 to 30	120	109	11.6	70	49.0	42.5
4	30 to 25	130	111	8.2	54	54.5	44.0
5	25 to 20	140	105	4.9	31	60.0	40.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 53 **T6-C4**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	120	113	14.4	80	49.0	45.0
2	40 to 35	120	110	12.1	72	49.0	43.5
3	35 to 30	120	105	9.6	60	49.0	40.5
4	30 to 25	130	105	6.7	43	54.5	40.5
5	25 to 20	140	100	4.2	25	60.0	37.5
6	20 to 15	150	100	3.2	18	65.5	37.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 54 **T6-D1**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	120	117	19.1	91	49.0	47.0
2	50 to 40	120	116	17.6	88	49.0	46.5
3	40 to 35	120	114	15.5	83	49.0	45.5
4	35 to 30	120	110	12.1	72	49.0	43.5
5	30 to 25	130	105	6.7	43	54.5	40.5
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 55 **T6-D2**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	120	116	17.6	88	49.0	46.5
2	50 to 40	120	115	16.3	85	49.0	46.0
3	40 to 35	120	112	13.5	77	49.0	44.5
4	35 to 30	120	106	9.9	62	49.0	41.0
5	30 to 25	130	100	5.7	35	54.5	37.5
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 56 **T6-D4**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	120	113	14.4	80	49.0	45.0
2	50 to 40	120	110	12.1	72	49.0	43.5
3	40 to 35	120	105	9.6	60	49.0	40.5
4	35 to 30	120	95	6.5	40	49.0	35.0
5	30 to 25	130	90	4.0	22	54.5	32.0
6	25 to 20	140	90	2.9	15	60.0	32.0
7	20 to 15	150	100	3.2	18	65.5	37.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 57 **T6-E3 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	120	115	16.3	85	49.0	46.0
2	60 to 50	120	113	14.4	80	49.0	45.0
3	50 to 40	120	109	11.6	70	49.0	42.5
4	40 to 35	120	101	8.2	52	49.0	38.5
5	35 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	90	4.0	22	54.5	32.0
7	25 to 20	140	90	2.9	15	60.0	32.0
8	20 to 15	150	100	3.2	18	65.5	37.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 58 **T6-E4 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	120	113	14.4	80	49.0	45.0
2	60 to 50	120	110	12.1	72	49.0	43.5
3	50 to 40	120	105	9.6	60	49.0	40.5
4	40 to 35	120	95	6.5	40	49.0	35.0
5	35 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	90	4.0	22	54.5	32.0
7	25 to 20	140	90	2.9	15	60.0	32.0
8	20 to 15	150	100	3.2	18	65.5	37.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 59 **T6-F3 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 70	120	115	16.3	85	49.0	46.0
2	70 to 60	120	113	14.4	80	49.0	45.0
3	60 to 50	120	109	11.6	70	49.0	42.5
4	50 to 40	120	101	8.2	52	49.0	38.5
5	40 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	90	4.0	22	54.5	32.0
7	25 to 20	140	90	2.9	15	60.0	32.0
8	20 to 15	150	100	3.2	18	65.5	37.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 60 **T6-H2 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 110	120	116	17.6	88	49.0	46.5
2	110 to100	120	115	16.3	85	49.0	46.0
3	100 to 90	120	112	13.5	77	49.0	44.5
4	90 to 80	120	106	9.9	62	49.0	41.0
5	80 to 70	120	90	5.5	32	49.0	32.0
6	70 to 30	120	90	5.5	32	49.0	32.0
7	30 to 25	130	90	4.0	22	54.5	32.0
8	25 to 20	140	90	2.9	15	60.0	32.0
9	20 to 15	150	100	3.2	18	65.5	37.5
10	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 61 **T7-B2**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 35	130	126	17.6	89	54.5	52.0
2	35 to 30	130	125	16.2	86	54.5	51.5
3	30 to 25	140	132	13.5	80	60.0	55.5
4	25 to 20	150	136	9.9	68	65.5	57.5
5	20 to 15	160	130	5.8	43	71.0	54.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 62 **T7-B3**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 35	130	125	16.2	86	54.5	51.5
2	35 to 30	130	123	14.3	81	54.5	50.5
3	30 to 25	140	129	11.5	73	60.0	54.0
4	25 to 20	150	131	8.3	59	65.5	55.0
5	20 to 15	160	125	5.1	37	71.0	51.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 63 **T7-B6 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	130	115	9.6	62	54.5	46.0
2	35 to 25	130	110	7.9	52	54.5	43.5
3	25 to 15	140	115	6.8	46	60.0	46.0
4	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 64 **T7-C2**

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	130	126	17.6	89	54.5	52.0
2	40 to 35	130	125	16.2	86	54.5	51.5
3	35 to 30	130	122	13.3	78	54.5	50.0
4	30 to 25	140	126	10.0	66	60.0	52.0
5	25 to 20	150	120	5.8	41	65.5	49.0
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 65 **T7-C3**

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	130	125	16.2	86	54.5	51.5
2	40 to 35	130	123	14.3	81	54.5	50.5
3	35 to 30	130	119	11.5	71	54.5	48.5
4	30 to 25	140	121	8.3	57	60.0	49.5
5	25 to 20	150	115	5.0	34	65.5	46.0
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 66 **T7-C4**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 40	130	123	14.3	81	54.5	50.5
2	40 to 35	130	120	12.2	74	54.5	49.0
3	35 to 30	130	115	9.6	62	54.5	46.0
4	30 to 25	140	115	6.8	46	60.0	46.0
5	25 to 20	150	110	4.4	28	65.5	43.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 67 **T7-C5**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 40	130	120	12.2	74	54.5	49.0
2	40 to 35	130	116	10.1	65	54.5	46.5
3	35 to 30	130	110	7.9	52	54.5	43.5
4	30 to 25	140	105	4.9	31	60.0	40.5
5	25 to 20	150	100	3.2	18	65.5	37.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 68 **T7-D5 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 50	130	120	12.2	74	54.5	49.0
2	50 to 40	130	115	9.6	62	54.5	46.0
3	40 to 35	135	115	8.0	54	57.0	46.0
4	35 to 30	140	115	6.8	46	60.0	46.0
5	30 to 25	145	115	5.9	40	62.5	46.0
6	25 to 20	150	115	5.0	34	65.5	46.0
7	20 to 15	155	115	4.5	30	68.5	46.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 69 **T7-E6 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 60	130	115	9.6	62	54.5	46.0
2	60 to 50	130	110	7.9	52	54.5	43.5
3	50 to 40	130	100	5.7	35	54.5	37.5
4	40 to 30	130	90	4.0	22	54.5	32.0
5	30 to 25	140	90	2.9	15	60.0	32.0
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 70 **T8-B3**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	130	125	16.2	86	54.5	51.5
2	35 to 30	130	123	14.3	81	54.5	50.5
3	30 to 25	140	129	11.5	73	60.0	54.0
4	25 to 20	150	131	8.3	59	65.5	55.0
5	20 to 15	160	125	5.1	37	71.0	51.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 71 **T8-B4**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 35	130	123	14.3	81	54.5	50.5
2	35 to 30	130	120	12.2	74	54.5	49.0
3	30 to 25	140	125	9.6	64	60.0	51.5
4	25 to 20	150	125	6.8	49	65.5	51.5
5	20 to 15	160	120	4.5	31	71.0	49.0
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 72 **T8-C1**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 40	130	127	19.2	92	54.5	52.5
2	40 to 35	130	126	17.6	89	54.5	52.0
3	35 to 30	130	124	15.4	84	54.5	51.0
4	30 to 25	140	130	12.0	75	60.0	54.5
5	25 to 20	150	125	6.8	49	65.5	51.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 73 **T8-C2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 40	130	126	17.6	89	54.5	52.0
2	40 to 35	130	125	16.2	86	54.5	51.5
3	35 to 30	130	122	13.3	78	54.5	50.0
4	30 to 25	140	126	10.0	66	60.0	52.0
5	25 to 20	150	120	5.8	41	65.5	49.0
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 74 **T8-C3**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 40	130	125	16.2	86	54.5	51.5
2	40 to 35	130	123	14.3	81	54.5	50.5
3	35 to 30	130	119	11.5	71	54.5	48.5
4	30 to 25	140	121	8.3	57	60.0	49.5
5	25 to 20	150	115	5.0	34	65.5	46.0
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 75 **T8-C4**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	130	123	14.3	81	54.5	50.5
2	40 to 35	130	120	12.2	74	54.5	49.0
3	35 to 30	130	115	9.6	62	54.5	46.0
4	30 to 25	140	115	6.8	46	60.0	46.0
5	25 to 20	150	110	4.4	28	65.5	43.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 76 **T8-C5**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	130	120	12.2	74	54.5	49.0
2	40 to 35	130	116	10.1	65	54.5	46.5
3	35 to 30	130	110	7.9	52	54.5	43.5
4	30 to 25	140	105	4.9	31	60.0	40.5
5	25 to 20	150	100	3.2	18	65.5	37.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 77 **T8-D1**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	130	127	19.2	92	54.5	52.5
2	50 to 40	130	126	17.6	89	54.5	52.0
3	40 to 35	130	124	15.4	84	54.5	51.0
4	35 to 30	130	120	12.2	74	54.5	49.0
5	30 to 25	140	115	6.8	46	60.0	46.0
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 78 **T8-D2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 50	130	126	17.6	89	54.5	52.0
2	50 to 40	130	125	16.2	86	54.5	51.5
3	40 to 35	130	122	13.3	78	54.5	50.0
4	35 to 30	130	116	10.1	65	54.5	46.5
5	30 to 25	140	110	5.8	38	60.0	43.5
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 79 **T8-D3**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 50	130	125	16.2	86	54.5	51.5
2	50 to 40	130	123	14.3	81	54.5	50.5
3	40 to 35	130	119	11.5	71	54.5	48.5
4	35 to 30	130	111	8.2	54	54.5	44.0
5	30 to 25	140	105	4.9	31	60.0	40.5
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 80 **T8-D4**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 50	130	123	14.3	81	54.5	50.5
2	50 to 40	130	120	12.2	74	54.5	49.0
3	40 to 35	130	115	9.6	62	54.5	46.0
4	35 to 30	130	105	6.7	43	54.5	40.5
5	30 to 25	140	100	4.2	25	60.0	37.5
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 81

T8-D5

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 50	130	120	12.2	74	54.5	49.0
2	50 to 40	130	116	10.1	65	54.5	46.5
3	40 to 35	130	110	7.9	52	54.5	43.5
4	35 to 30	130	95	4.8	28	54.5	35.0
5	30 to 25	140	90	2.9	15	60.0	32.0
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 82

T8-D6 (Modified)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 50	130	115	9.6	62	54.5	46.0
2	50 to 40	130	110	7.9	52	54.5	43.5
3	40 to 35	130	100	5.7	35	54.5	37.5
4	35 to 30	130	90	4.0	22	54.5	32.0
5	30 to 25	140	90	2.9	15	60.0	32.0
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 83

T8-E3

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 60	130	125	16.2	86	54.5	51.5
2	60 to 50	130	123	14.3	81	54.5	50.5
3	50 to 40	130	119	11.5	71	54.5	48.5
4	40 to 35	130	111	8.2	54	54.5	44.0
5	35 to 30	130	95	4.8	28	54.5	35.0
6	30 to 25	140	90	2.9	15	60.0	32.0
7	25 to 20	150	100	3.2	18	65.5	37.5
8	20 to 15	160	110	3.4	21	71.0	43.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 84 **T8-E5 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 60	130	120	12.2	74	54.5	49.0
2	60 to 50	130	116	10.1	65	54.5	46.5
3	50 to 40	130	110	7.9	52	54.5	43.5
4	40 to 35	130	95	4.8	28	54.5	35.0
5	35 to 30	130	90	4.0	22	54.5	32.0
6	30 to 25	140	90	2.9	15	60.0	32.0
7	25 to 20	150	100	3.2	18	65.5	37.5
8	20 to 15	160	110	3.4	21	71.0	43.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 85 **T8-E6 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 60	130	115	9.6	62	54.5	46.0
2	60 to 50	130	110	7.9	52	54.5	43.5
3	50 to 40	130	100	5.7	35	54.5	37.5
4	40 to 30	130	90	4.0	22	54.5	32.0
5	30 to 25	140	90	2.9	15	60.0	32.0
6	25 to 20	150	100	3.2	18	65.5	37.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 86 **T8-F3 (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 70	130	125	16.2	86	54.5	51.5
2	70 to 60	130	123	14.3	81	54.5	50.5
3	60 to 50	130	119	11.5	71	54.5	48.5
4	50 to 40	130	111	8.2	54	54.5	44.0
5	40 to 35	130	95	4.8	28	54.5	35.0
6	35 to 30	130	90	4.0	22	54.5	32.0
7	30 to 25	140	90	2.9	15	60.0	32.0
8	25 to 20	150	100	3.2	18	65.5	37.5
9	20 to 15	160	110	3.4	21	71.0	43.5
10	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 87 **T8-F4 (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 70	130	123	14.3	81	54.5	50.5
2	70 to 60	130	120	12.2	74	54.5	49.0
3	60 to 50	130	115	9.6	62	54.5	46.0
4	50 to 40	130	105	6.7	43	54.5	40.5
5	40 to 30	130	90	4.0	22	54.5	32.0
6	30 to 25	140	90	2.9	15	60.0	32.0
7	25 to 20	150	100	3.2	18	65.5	37.5
8	20 to 15	160	110	3.4	21	71.0	43.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 88 **T9-C2**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 40	140	136	17.1	89	60.0	57.5
2	40 to 35	140	135	16.2	87	60.0	57.0
3	35 to 30	140	132	13.5	80	60.0	55.5
4	30 to 25	150	136	9.9	68	65.5	57.5
5	25 to 20	160	130	5.8	43	71.0	54.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 89 **T9-C3**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 40	140	135	16.2	87	60.0	57.0
2	40 to 35	140	133	14.2	82	60.0	56.0
3	35 to 30	140	129	11.5	73	60.0	54.0
4	30 to 25	150	131	8.3	59	65.5	55.0
5	25 to 20	160	125	5.1	37	71.0	51.5
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 90

T9-C4

		Temperature		Equilibrium		Temperature	
Step	**Moisture content**	**Dry-bulb**	**Wet-bulb**	**moisture content**	**Relative humidity**	**Dry-bulb**	**Wet-bulb**
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	140	133	14.2	82	60.0	56.0
2	40 to 35	140	130	12.0	75	60.0	54.5
3	35 to 30	140	125	9.6	64	60.0	51.5
4	30 to 25	150	125	6.8	49	65.5	51.5
5	25 to 20	160	120	4.5	31	71.0	49.0
6	20 to 15	160	110	3.4	21	71.0	43.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 91

T9-E7

		Temperature		Equilibrium		Temperature	
Step	**Moisture content**	**Dry-bulb**	**Wet-bulb**	**moisture content**	**Relative humidity**	**Dry-bulb**	**Wet-bulb**
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 60	140	120	8.0	55	60.0	49.0
2	60 to 50	140	110	5.8	38	60.0	43.5
3	50 to 40	140	100	4.2	25	60.0	37.5
4	40 to 30	140	90	2.9	15	60.0	32.0
5	30 to 25	150	100	3.2	18	65.5	37.5
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	160	110	3.4	21	71.0	43.5
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 92

T10-C4

		Temperature		Equilibrium		Temperature	
Step	**Moisture content**	**Dry-bulb**	**Wet-bulb**	**moisture content**	**Relative humidity**	**Dry-bulb**	**Wet-bulb**
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	140	133	14.2	82	60.0	56.0
2	40 to 35	140	130	12.0	75	60.0	54.5
3	35 to 30	140	125	9.6	64	60.0	51.5
4	30 to 25	150	125	6.8	49	65.5	51.5
5	25 to 20	160	120	4.5	31	71.0	49.0
6	20 to 15	170	120	3.5	24	76.5	49.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 93 **T10-C6**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	140	125	9.6	64	60.0	51.5
2	40 to 35	140	120	8.0	55	60.0	49.0
3	35 to 30	140	110	5.8	38	60.0	43.5
4	30 to 25	150	100	3.2	18	65.5	37.5
5	25 to 20	160	110	3.4	21	71.0	43.5
6	20 to 15	170	120	3.5	24	76.5	49.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 94 **T10-D2**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	140	136	17.1	89	60.0	57.5
2	50 to 40	140	135	16.2	87	60.0	57.0
3	40 to 35	140	132	13.5	80	60.0	55.5
4	35 to 30	140	126	10.0	66	60.0	52.0
5	30 to 25	150	120	5.8	41	65.5	49.0
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 95 **T10-D3**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	140	135	16.2	87	60.0	57.0
2	50 to 40	140	133	14.2	82	60.0	56.0
3	40 to 35	140	129	11.5	73	60.0	54.0
4	35 to 30	140	121	8.3	57	60.0	49.5
5	30 to 25	150	115	5.0	34	65.5	46.0
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 96 **T10-D4**

Step	Moisture content	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	pct	°F		pct		°C	
1	Above 50	140	133	14.2	82	60.0	56.0
2	50 to 40	140	130	12.0	75	60.0	54.5
3	40 to 35	140	125	9.6	64	60.0	51.5
4	35 to 30	140	115	6.8	46	60.0	46.0
5	30 to 25	150	110	4.4	28	65.5	43.5
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 97 **T10-E3**

Step	Moisture content	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	pct	°F		pct		°C	
1	Above 60	140	135	16.2	87	60.0	57.0
2	60 to 50	140	133	14.2	82	60.0	56.0
3	50 to 40	140	129	11.5	73	60.0	54.0
4	40 to 35	140	121	8.3	57	60.0	49.5
5	35 to 30	140	105	4.9	31	60.0	40.5
6	30 to 25	150	100	3.2	18	65.5	37.5
7	25 to 20	160	110	3.4	21	71.0	43.5
8	20 to 15	170	120	3.5	24	76.5	49.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 98 **T10-E4**

Step	Moisture content	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	pct	°F		pct		°C	
1	Above 60	140	133	14.2	82	60.0	56.0
2	60 to 50	140	130	12.0	75	60.0	54.5
3	50 to 40	140	125	9.6	64	60.0	51.5
4	40 to 35	140	115	6.8	46	60.0	46.0
5	35 to 30	140	100	4.2	25	60.0	37.5
6	30 to 25	150	100	3.2	18	65.5	37.5
7	25 to 20	160	110	3.4	21	71.0	43.5
8	20 to 15	170	120	3.5	24	76.5	49.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 99 **T10-E6**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 60	140	125	9.6	64	60.0	51.5
2	60 to 50	140	120	8.0	55	60.0	49.0
3	50 to 40	140	110	5.8	38	60.0	43.5
4	40 to 30	140	90	2.9	15	60.0	32.0
5	30 to 25	150	100	3.2	18	65.5	37.5
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 100 **T10-F4**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 70	140	133	14.2	82	60.0	56.0
2	70 to 60	140	130	12.0	75	60.0	54.5
3	60 to 50	140	125	9.6	64	60.0	51.5
4	50 to 40	140	115	6.8	46	60.0	46.0
5	40 to 35	140	100	4.2	25	60.0	37.5
6	35 to 30	140	90	2.9	15	60.0	32.0
7	30 to 25	150	100	3.2	18	65.5	37.5
8	25 to 20	160	110	3.4	21	71.0	43.5
9	20 to 15	170	120	3.5	24	76.5	49.0
10	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 101 **T10-F5**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 70	140	130	12.0	75	60.0	54.5
2	70 to 60	140	126	10.0	66	60.0	52.0
3	60 to 50	140	120	8.0	55	60.0	49.0
4	50 to 40	140	105	4.9	31	60.0	40.5
5	40 to 30	140	90	2.9	15	60.0	32.0
6	30 to 25	150	100	3.2	18	65.5	37.5
7	25 to 20	160	110	3.4	21	71.0	43.5
8	20 to 15	170	120	3.5	24	76.5	49.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 102 **T11-D3**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - °C	- - - - - -
1	Above 50	150	145	16.1	88	65.5	62.5
2	50 to 40	150	143	14.0	83	65.5	61.5
3	40 to 35	150	139	11.3	74	65.5	59.5
4	35 to 30	150	131	8.3	59	65.5	55.0
5	30 to 25	160	125	5.1	37	71.0	51.5
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 103 **T11-D4**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - °C	- - - - - -
1	Above 50	150	143	14.0	83	65.5	61.5
2	50 to 40	150	140	11.8	76	65.5	60.0
3	40 to 35	150	135	9.5	66	65.5	57.0
4	35 to 30	150	125	6.8	49	65.5	51.5
5	30 to 25	160	120	4.5	31	71.0	49.0
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 104 **T11-D5**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - °C	- - - - - -
1	Above 50	150	140	11.8	76	65.5	60.0
2	50 to 40	150	136	9.9	68	65.5	57.5
3	40 to 35	150	130	8.0	57	65.5	54.5
4	35 to 30	150	115	5.0	34	65.5	46.0
5	30 to 25	160	110	3.4	21	71.0	43.5
6	25 to 20	160	110	3.4	21	71.0	43.5
7	20 to 15	170	120	3.5	24	76.5	49.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 105 **T12-E5**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 60	160	150	11.6	77	71.0	65.5
2	60 to 50	160	146	9.7	69	71.0	63.5
3	50 to 40	160	140	7.9	59	71.0	60.0
4	40 to 35	160	125	5.1	37	71.0	51.5
5	35 to 30	160	110	3.4	21	71.0	43.5
6	30 to 25	170	120	3.5	24	76.5	49.0
7	25 to 20	170	120	3.5	24	76.5	49.0
8	20 to 15	180	130	3.5	26	82.0	54.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 106 **T12-E7**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 60	160	140	7.9	59	71.0	60.0
2	60 to 50	160	130	5.8	43	71.0	54.5
3	50 to 40	160	120	4.5	31	71.0	49.0
4	40 to 30	160	110	3.4	21	71.0	43.5
5	30 to 25	170	120	3.5	24	76.5	49.0
6	25 to 20	170	120	3.5	24	76.5	49.0
7	20 to 15	180	130	3.5	26	82.0	54.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 107 **T12-F5**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 70	160	150	11.6	77	71.0	65.5
2	70 to 60	160	146	9.7	69	71.0	63.5
3	60 to 50	160	140	7.9	59	71.0	60.0
4	50 to 40	160	125	5.1	37	71.0	51.5
5	40 to 30	160	110	3.4	21	71.0	43.5
6	30 to 25	170	120	3.5	24	76.5	49.0
7	25 to 20	170	120	3.5	24	76.5	49.0
8	20 to 15	180	130	3.5	26	82.0	54.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 108 T12-F6

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 70	160	145	9.3	67	71.0	62.5
2	70 to 60	160	140	7.9	59	71.0	60.0
3	60 to 50	160	130	5.8	43	71.0	54.5
4	50 to 40	160	110	3.4	21	71.0	43.5
5	40 to 30	160	110	3.4	21	71.0	43.5
6	30 to 25	170	120	3.5	24	76.5	49.0
7	25 to 20	170	120	3.5	24	76.5	49.0
8	20 to 15	180	130	3.5	26	82.0	54.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 109 (4/4 & 5/4 aspen, low- to moderate-collapse kiln schedules)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 70	110	100	12.0	70	43.5	37.5
2	70 to 60	110	100	12.0	70	43.5	37.5
3	60 to 50	115	100	9.6	59	46.0	37.5
4	50 to 40	120	100	7.9	50	49.0	37.5
5	40 to 30	130	105	6.7	43	54.5	40.5
6	30 to 25	150	110	4.4	28	65.5	43.5
7	25 to 20	150	110	4.4	28	65.5	43.5
8	20 to 12	[1]180	135	3.9	30	[1]82.0	57.0
9	12 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

[1] Operate with vents closed, no steam spray until equalizing.

Table 110 (5/4 aspen, low- to moderate-collapse kiln schedules)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 70	140	133	14.2	82	60.0	56.0
2	70 to 60	140	130	12.0	75	60.0	54.5
3	60 to 50	140	125	9.6	64	60.0	51.5
4	50 to 40	140	120	8.0	55	60.0	49.0
5	40 to 30	140	110	5.8	38	60.0	43.5
6	30 to 25	[1]150	100	3.2	18	[1]65.5	37.5
7	25 to 20	170	120	3.5	24	76.5	49.0
8	20 to 12	170	120	3.5	24	76.5	49.0
9	[2]12 to 8	180	130	3.5	26	82.0	54.5
10	[3]8 to Final	200	140	2.7	22	93.5	60.0

Equalize and condition as necessary (see appendix A).

[1] Operate with vents closed, no steam spray until equalizing.

[2] Continue until very wettest sample is 8 pct moisture content.

[3] Target is 3-1/4 to 4-1/4 pct moisture content; time on this step about 5 days.

Table 111 (4/4 and 5/4 maple, whitest color, initial MC 50 pct or lower)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 28	105	95	12.0	69	40.5	35.0
2	25 to 24	108	95	10.4	62	42.0	35.0
3	24 to 20	108	90	8.3	50	42.0	32.0
4	20 to 16	108	90	8.3	50	42.0	32.0
5	16 to 13	115	90	6.4	38	46.0	32.0
6	13 to 10	125	90	4.6	26	51.5	32.0
7	10 to Final	160	105	2.9	17	71.0	40.5

Equalize and condition as necessary (see appendix A).

Table 112 (4/4 and 5/4 maple, whitest color, initial MC 51 pct or higher)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 40	105	95	12.0	69	40.5	35.0
2	40 to 35	108	95	10.4	62	42.0	35.0
3	35 to 30	108	90	8.3	50	42.0	32.0
4	30 to 26	108	90	8.3	50	42.0	32.0
5	26 to 20	108	90	8.3	50	42.0	32.0
6	20 to 16	115	90	6.4	38	46.0	32.0
7	16 to 12	125	90	4.6	26	51.5	32.0
8	12 to Final	160	105	2.9	17	71.0	40.5

Equalize and condition as necessary (see appendix A).

Table 113 (6/4 and 8/4 southern lowland oak)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
	(Air dry to)						
1	30 to 25	105	97	13.5	75	40.5	36.0
2	25 to 20	110	99	11.6	68	43.5	37.0
3	20 to 15	120	105	9.6	60	49.0	40.5
4	15 to 11	130	100	5.7	35	54.5	37.5
5	11 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 114 (bacterially infected 4/4 upland red oak, schedule for minimizing honeycomb and degrade[1])

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Above 55	105	102	19.3	90	40.5	39.0
2	55 to 45	105	100	16.2	83	40.5	37.5
3	45 to 35	105	96	12.6	71	40.5	35.5
4	35 to 30	105	92	10.3	60	40.5	33.0
5	30 to 27	105	90	9.4	55	40.5	32.0
6	27 to 25	110	93	8.8	52	43.5	34.0
7	25 to 20	120	100	7.9	49	49.0	37.5
8	20 to 16	130	100	5.6	35	54.5	37.5
9	16 to 12	150	110	4.2	28	65.5	43.5
10	12 to Final	180	130	3.3	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

[1] Material from southern lowland oak should be air dried in a sheltered location or forced-air dried by a mild 8/4 procedure until the wettest half of the infected kiln samples have a moisture content of 22 pct or lower. Kiln drying can then be started using 120 °F dry-bulb and 110 °F wet-bulb temperatures for 16 to 24 h. Then the above schedule can be followed in accordance with the moisture content of the controlling samples.

Table 115 (bacterially infected 6/4 red oak, schedule for minimizing honeycomb and degrade)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 50	100	97	19.5	90	37.5	36.0
2	50 to 45	100	95	16.4	83	37.5	35.0
3	45 to 40	100	93	14.3	77	37.5	34.0
4	40 to 35	100	90	11.9	68	37.5	32.0
5	35 to 30	105	92	10.3	60	40.5	33.5
6	30 to 25	110	95	9.5	58	43.5	35.0
7	25 to 20	120	100	7.9	50	49.0	37.5
8	20 to 16	130	100	5.7	35	54.5	37.5
9	16 to 12	150	110	4.2	28	65.5	43.5
10	12 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 116 (bacterially infected 8/4 red oak, air dried or predried—drying history unknown)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 20	110	100	12.0	70	43.5	37.5
2	20 to 18	125	110	9.7	61	51.5	43.5
3	18 to 14	140	110	5.8	38	60.0	43.5
4	14 to 10	160	110	3.4	21	71.0	43.5
5	10 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 117 (bacterially infected 8/4 red oak, predried from green; then kiln dried)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 80	90	87	18.9	89	32.0	30.5
2	80 to 75	96	93	19.0	89	35.5	34.0
3	75 to 65	100	96	17.6	86	37.5	35.5
4	65 to 44	100	95	16.4	83	37.5	35.0
5	44 to 32	105	95	12.0	69	40.5	35.0
6	32 to 30	115	100	9.6	59	46.0	37.5
7	30 to 26	120	100	7.9	50	49.0	37.5
8	26 to 21	125	100	6.7	41	51.5	37.5
9	21 to 18	150	110	4.2	28	65.5	43.5
10	18 to 16	160	110	3.4	21	71.0	43.5
11	16 to 12	170	120	3.5	24	76.5	49.0
12	12 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 118 (presurfaced 4/4 upland red oak)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	[1]Above 53	115	111	17.8	88	46.0	44.0
2	53 to 43	115	110	16.5	85	46.0	43.5
3	43 to 37	115	107	13.4	76	46.0	41.5
4	37 to 35	115	101	9.9	61	46.0	38.5
5	[2]35 to 30	120	90	5.5	32	49.0	32.0
6	30 to 27	125	90	4.6	26	51.5	32.0
7	27 to 21	130	90	4.0	22	54.5	32.0
8	21 to 17	140	90	2.9	15	60.0	32.0
9	17 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

[1] Schedule changes in steps 1-4 based on average moisture content of all samples.

[2] Schedule changes in steps 5-9 based on average moisture content of wettest half of samples.

Table 119 (presurfaced 4/4 upland white oak)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	[1]Above 42	115	111	17.8	88	46.0	44.0
2	42 to 37	115	110	16.5	85	46.0	43.5
3	37 to 33	115	107	13.4	76	46.0	41.5
4	33 to	115	101	9.9	61	46.0	38.5
5	[2]35 to 30	120	90	5.5	32	49.0	32.0
6	30 to 27	125	90	4.6	26	51.5	32.0
7	27 to 21	130	90	4.0	22	54.5	32.0
8	21 to 17	140	90	2.9	15	60.0	32.0
9	17 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

[1] Schedule changes in steps 1-4 based on average moisture content of all samples.

[2] Schedule changes in steps 5-9 based on average moisture content of wettest half of samples.

Table 120 **R-1**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	120	115	16.2	85	49.0	46.0
2	40 to 35	122	115	14.1	80	50.0	46.0
3	35 to 30	125	115	12.1	73	51.5	46.0
4	30 to 28	127	115	11.0	69	52.5	46.0
5	28 to 25	130	115	9.7	62	54.5	46.0
6	25 to 22	134	115	8.3	55	56.0	46.0
7	22 to 18	140	115	6.9	46	60.0	46.0
8	18 to 15	150	115	5.1	35	65.5	46.0
9	15 to Final	160	120	4.3	31	71.0	49.0

Table 121 **R-2**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 40	114	110	17.5	88	45.5	43.5
2	40 to 35	116	110	15.1	82	46.5	43.5
3	35 to 30	118	110	13.4	76	47.5	43.5
4	30 to 28	122	110	11.0	67	50.0	43.5
5	28 to 25	127	110	9.0	57	52.5	43.5
6	25 to 22	132	110	7.6	48	55.5	43.5
7	22 to 18	140	110	5.8	38	60.0	43.5
8	18 to 15	150	110	4.2	28	65.5	43.5
9	15 to Final	160	120	4.3	31	71.0	49.0

Table 122 **R-3**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 50	110	106	17.5	87	43.5	41.0
2	50 to 40	110	105	16.2	84	43.5	40.5
3	40 to 35	113	105	13.3	75	45.0	40.5
4	35 to 32	116	105	11.5	68	46.5	40.5
5	32 to 28	120	105	9.7	60	49.0	40.5
6	28 to 25	125	105	8.0	51	51.5	40.5
7	25 to 22	130	105	6.8	43	54.5	40.5
8	22 to 18	135	105	6.1	39	57.0	40.5
9	18 to 15	140	105	5.1	32	60.0	40.5
10	15 to 12	145	105	4.1	27	62.5	40.5
11	12 to Final	160	120	4.3	31	71.0	49.0

Table 123 **R-4**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	[1]Above 50	105	102	19.0	90	40.5	39.0
2	50 to 40	108	104	17.5	87	42.0	40.0
3	40 to 35	110	104	15.1	81	43.5	40.0
4	35 to 30	110	101	12.6	73	43.5	38.0
5	30 to 25	110	98	10.8	65	43.5	36.5
6	[2]25 to 20	112	98	10.0	61	44.5	36.5
7	24 h	115	98	8.9	54	46.0	36.5
8	[3]24 h	120	98	7.4	45	49.0	36.5
9	20 to 15	125	100	6.7	41	51.5	37.5
10	15	130	100	5.6	35	54.5	37.5
11	After 24 h	135	105	5.6	33	57.0	40.5
12	After 24 h	140	105	5.0	31	60.0	40.5
13	After 24 h	145	105	4.1	26	62.5	40.5
14	To 10	150	110	4.2	28	65.5	43.5
15	10 to Final	160	120	4.3	31	71.0	49.0

[1] Schedule changes in steps 1-5 based on average moisture content of all samples.

[2] Hold step 6 until core moisture content is below 30 pct.

[3] Hold step 8 until core moisture content is below 25 pct.

Conventional and Elevated Temperature Schedules: Softwoods (Tables 200-316)

This group of tables contains schedules suggested for use with softwood (conifer) lumber and are typically used with steam-heated kilns. However, a few tropical hardwoods are dried under these schedules. Both moisture content (MC)-controlled schedules for products requiring very close control of final MC, such as furniture, millwork, and cabinet stock, and time-controlled schedules more generally used for drying products used in construction are listed.

In a few of the schedule headings, the word "modified" appears in parentheses after the coded designation, e.g., Table 1, T3-F4S (Modified). This means we have modified the suggested schedule(s) from Agriculture Handbook 188, *Dry Kiln Operator's Manual*, so that the wet-bulb temperature (WBT) is never less than 90 °F. During periods of hot humid weather, it may not be possible to achieve WBT's below 90 °F even with continuous venting. When energy conservation is a prime consideration, continuous venting may not be the best overall alternative as heat is lost in this process of controlling the WBT or relative humidity in the kiln. As a practical approach, we have suggested limiting the minimum WBT to 90 °F.

Most schedules have dry-bulb temperatures between 110 and 200 °F.

Table 200 **T3-F4S (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 70	110	103	14.2	78	43.5	39.5
2	70 to 60	110	100	12.0	70	43.5	37.5
3	60 to 50	110	95	9.5	58	43.5	35.0
4	50 to 40	110	90	7.6	46	43.5	32.0
5	40 to 30	110	90	7.6	46	43.5	32.0
6	30 to 25	120	90	5.5	32	49.0	32.0
7	25 to 20	130	95	4.6	28	54.5	35.0
8	20 to 15	140	105	4.9	31	60.0	40.5
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 201 **T3-F5S (Modified)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 70	110	100	12.0	70	43.5	37.5
2	70 to 60	110	96	9.9	60	43.5	35.5
3	60 to 50	110	90	7.6	46	43.5	32.0
4	50 to 40	110	90	7.6	46	43.5	32.0
5	40 to 30	110	90	7.6	46	43.5	32.0
6	30 to 25	120	90	5.5	32	49.0	32.0
7	25 to 20	130	95	4.8	28	54.5	35.0
8	20 to 15	140	105	4.9	31	60.0	40.5
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 202 **T4-F5S (Modified)**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 70	110	100	12.0	70	43.5	37.5
2	70 to 60	110	96	9.9	60	43.5	35.5
3	60 to 50	110	90	7.6	46	43.5	32.0
4	50 to 40	110	90	7.6	46	43.5	32.0
5	40 to 30	110	90	7.6	46	43.5	32.0
6	30 to 25	120	90	5.5	32	49.0	32.0
7	25 to 20	130	95	4.8	28	54.5	35.0
8	20 to 15	140	105	4.9	31	60.0	40.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 203 **T5-A1S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 30	120	117	19.1	91	49.0	47.0
2	30 to 25	130	126	17.6	89	54.5	52.0
3	25 to 20	140	134	14.9	84	60.0	56.5
4	20 to 15	150	140	11.8	76	65.5	60.0
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 204 **T5-A2S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 30	120	116	17.6	88	49.0	46.5
2	30 to 25	130	125	16.2	86	54.5	51.5
3	25 to 20	140	132	13.5	80	60.0	55.5
4	20 to 15	150	136	9.9	68	65.5	57.5
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 205 **T5-A3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	120	115	16.3	85	49.0	46.0
2	30 to 25	130	123	14.3	81	54.5	50.5
3	25 to 20	140	129	11.5	73	60.0	54.0
4	20 to 15	150	135	9.5	66	65.5	57.0
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 206 **T5-A4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	120	113	14.4	80	49.0	45.0
2	30 to 25	130	120	12.2	74	54.5	49.0
3	25 to 20	140	125	9.6	64	60.0	51.5
4	20 to 15	150	130	8.0	57	65.5	54.5
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 207 **T5-B2S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 35	120	116	17.6	88	49.0	46.5
2	35 to 30	120	115	16.3	85	49.0	46.0
3	30 to 25	130	122	13.3	78	54.5	50.0
4	25 to 20	140	126	10.0	66	60.0	52.0
5	20 to 15	150	130	8.0	57	65.5	54.5
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 208 **T5-C2S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	120	116	17.6	88	49.0	46.5
2	40 to 35	120	115	16.3	85	49.0	46.0
3	35 to 30	120	112	13.5	77	49.0	44.5
4	30 to 25	130	116	10.1	65	54.5	46.5
5	25 to 20	140	120	8.0	55	60.0	49.0
6	20 to 15	150	125	6.8	49	65.5	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 209 **T5-C3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	120	115	16.3	85	49.0	46.0
2	40 to 35	120	113	14.4	80	49.0	45.0
3	35 to 30	120	109	11.6	70	49.0	42.5
4	30 to 25	130	115	9.6	62	54.5	46.0
5	25 to 20	140	120	8.0	55	60.0	49.0
6	20 to 15	150	125	6.8	49	65.5	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 210 **T5-C4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 40	120	113	14.4	80	49.0	45.0
2	40 to 35	120	110	12.1	72	49.0	43.5
3	35 to 30	120	105	9.6	60	49.0	40.5
4	30 to 25	130	110	7.9	52	54.5	43.5
5	25 to 20	140	115	6.8	46	60.0	46.0
6	20 to 15	150	120	5.8	41	65.5	49.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 211 **T5-D4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	120	113	14.4	80	49.0	45.0
2	50 to 40	120	110	12.1	72	49.0	43.5
3	40 to 35	120	105	9.6	60	49.0	40.5
4	35 to 30	120	100	7.9	50	49.0	37.5
5	30 to 25	130	105	6.7	43	54.5	40.5
6	25 to 20	140	110	5.8	38	60.0	43.5
7	20 to 15	150	115	5.0	34	65.5	46.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 212 **T5-D6S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	120	105	9.6	60	49.0	40.5
2	50 to 40	120	100	7.9	50	49.0	37.5
3	40 to 35	120	95	6.5	40	49.0	35.0
4	35 to 30	120	90	5.5	32	49.0	32.0
5	30 to 25	130	95	4.8	28	54.5	35.0
6	25 to 20	140	105	4.9	31	60.0	40.5
7	20 to 15	150	115	5.0	34	65.5	46.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 213 **T5-E5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 60	120	110	12.1	72	49.0	43.5
2	60 to 50	120	106	9.9	62	49.0	41.0
3	50 to 40	120	100	7.9	50	49.0	37.5
4	40 to 35	120	95	6.5	40	49.0	35.0
5	35 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	95	4.8	28	54.5	35.0
7	25 to 20	140	105	4.9	31	60.0	40.5
8	20 to 15	150	115	5.0	34	65.5	46.0
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 214 **T5-E6S (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 60	120	105	9.6	60	49.0	40.5
2	60 to 50	120	100	7.9	50	49.0	37.5
3	50 to 40	120	95	6.5	40	49.0	35.0
4	40 to 30	120	90	5.5	32	49.0	32.0
5	30 to 25	130	95	4.8	28	54.5	35.0
6	25 to 20	140	105	4.9	31	60.0	40.5
7	20 to 15	150	115	5.0	34	65.5	46.0
8	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 215 **T5-F3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 70	120	115	16.3	85	49.0	46.0
2	70 to 60	120	113	14.4	80	49.0	45.0
3	60 to 50	120	109	11.0	70	49.0	42.5
4	50 to 40	120	105	9.6	60	49.0	40.5
5	40 to 35	120	100	7.9	50	49.0	37.5
6	35 to 30	120	95	6.5	40	49.0	35.0
7	30 to 25	130	100	5.7	35	54.5	37.5
8	25 to 20	140	105	4.9	31	60.0	40.5
9	20 to 15	150	115	5.0	34	65.5	46.0
10	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 216 **T5-F4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 70	120	113	14.4	80	49.0	45.0
2	70 to 60	120	110	12.1	72	49.0	43.5
3	60 to 50	120	105	9.6	60	49.0	40.5
4	50 to 40	120	100	7.9	50	49.0	37.5
5	40 to 35	120	95	6.5	40	49.0	35.0
6	35 to 30	120	90	5.5	32	49.0	32.0
7	30 to 25	130	95	4.8	28	54.5	35.0
8	25 to 20	140	105	4.9	31	60.0	40.5
9	20 to 15	150	115	5.0	34	65.5	46.0
10	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 217 **T5-F5S (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
[illegible]	Above 70	120	110	12.1	72	49.0	43.5
2	70 to 60	120	106	9.9	62	49.0	41.0
3	60 to 50	120	100	7.9	50	49.0	37.5
4	50 to 40	120	95	6.5	40	49.0	35.0
5	40 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	95	4.8	28	54.5	35.0
7	25 to 20	140	105	4.9	31	60.0	40.5
8	20 to 15	150	115	5.0	34	65.5	46.0
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 218 **T5-F6S (Modified)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 70	120	105	9.6	60	49.0	40.5
2	70 to 60	120	100	7.9	50	49.0	37.5
3	60 to 50	120	95	6.5	40	49.0	35.0
4	50 to 40	120	90	5.5	32	49.0	32.0
5	40 to 30	120	90	5.5	32	49.0	32.0
6	30 to 25	130	95	4.8	28	54.5	35.0
7	25 to 20	140	105	4.9	31	60.0	40.5
8	20 to 15	150	115	5.0	34	65.5	46.0
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 219 **T7-A2S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	130	126	17.6	89	54.5	52.0
2	30 to 25	140	135	16.2	87	60.0	57.0
3	25 to 20	150	142	13.3	81	65.5	61.0
4	20 to 15	160	146	9.7	69	71.0	63.5
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 220 **T7-A3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 30	130	125	16.2	86	54.5	51.5
2	30 to 25	140	133	14.2	82	60.0	56.0
3	25 to 20	150	139	11.3	74	65.5	59.5
4	20 to 15	160	145	9.3	67	71.0	62.5
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 221 **T7-A4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 30	130	123	14.3	81	54.5	50.5
2	30 to 25	140	130	12.0	75	60.0	54.5
3	25 to 20	150	135	9.5	66	65.5	57.0
4	20 to 15	160	140	7.9	59	71.0	60.0
5	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 222 **T7-C3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 40	130	125	16.2	86	54.5	51.5
2	40 to 35	130	123	14.3	81	54.5	50.5
3	35 to 30	130	119	11.5	71	54.5	48.5
4	30 to 25	140	125	9.6	64	60.0	51.5
5	25 to 20	150	130	8.0	57	65.5	54.5
6	20 to 15	160	135	6.8	51	71.0	57.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 223 **T7-C4S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 40	130	123	14.3	81	54.5	50.5
2	40 to 35	130	120	12.2	74	54.5	49.0
3	35 to 30	130	115	9.6	62	54.5	46.0
4	30 to 25	140	120	8.0	55	60.0	49.0
5	25 to 20	150	125	6.8	49	65.5	51.5
6	20 to 15	160	130	5.8	43	71.0	54.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 224 **T7-C5S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 40	130	120	12.2	74	54.5	49.0
2	40 to 35	130	116	10.1	65	54.5	46.5
3	35 to 30	130	110	7.9	52	54.5	43.5
4	30 to 25	140	115	6.8	46	60.0	46.0
5	25 to 20	150	120	5.8	41	65.5	49.0
6	20 to 15	160	125	5.1	37	71.0	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 225 **T7-C6S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ pct ------		------ °C ------	
1	Above 40	130	115	9.6	62	54.5	46.0
2	40 to 35	130	110	7.9	52	54.5	43.5
3	35 to 30	130	105	6.7	43	54.5	40.5
4	30 to 25	140	110	5.8	38	60.0	43.5
5	25 to 20	150	115	5.0	34	65.5	46.0
6	20 to 15	160	125	5.1	37	71.0	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 226 **T7-E4S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	130	123	14.3	81	54.5	50.5
2	60 to 50	130	120	12.2	74	54.5	49.0
3	50 to 40	130	115	9.6	62	54.5	46.0
4	40 to 35	130	110	7.9	52	54.5	43.5
5	35 to 30	130	105	6.7	43	54.5	40.5
6	30 to 25	140	110	5.8	38	60.0	43.5
7	25 to 20	150	115	5.0	34	65.5	46.0
8	20 to 15	160	125	5.1	37	71.0	51.5
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 227 **T7-E5S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	130	120	12.2	74	54.5	49.0
2	60 to 50	130	116	10.1	65	54.5	46.5
3	50 to 40	130	110	7.9	52	54.5	43.5
4	40 to 35	130	105	6.7	43	54.5	40.5
5	35 to 30	130	100	5.7	35	54.5	37.5
6	30 to 25	140	105	4.9	31	60.0	40.5
7	25 to 20	150	115	5.0	34	65.5	46.0
8	20 to 15	160	125	5.1	37	71.0	51.5
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 228 **T7-E6S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	130	115	9.6	62	54.5	46.0
2	60 to 50	130	110	7.9	52	54.5	43.5
3	50 to 40	130	105	6.7	43	54.5	40.5
4	40 to 35	130	100	5.7	35	54.5	37.5
5	35 to 30	130	95	4.8	28	54.5	35.0
6	30 to 25	140	105	4.9	31	60.0	40.5
7	25 to 20	150	115	5.0	34	65.5	46.0
8	20 to 15	160	125	5.1	37	71.0	51.5
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 229 **T8-A2S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 30	130	126	17.6	89	54.5	52.0
2	30 to 25	140	135	16.2	87	60.0	57.0
3	25 to 20	150	142	13.3	81	65.5	61.0
4	20 to 15	160	146	9.7	69	71.0	63.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 230 **T8-A3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 30	130	125	16.2	86	54.5	51.5
2	30 to 25	140	133	14.2	82	60.0	56.0
3	25 to 20	150	139	11.3	74	65.5	59.5
4	20 to 15	160	145	9.3	67	71.0	62.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 231 **T8-A4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ *°F* ------		------ *pct* ------		------ *°C* ------	
1	Above 30	130	123	14.3	81	54.5	50.5
2	30 to 25	140	130	12.0	75	60.0	54.5
3	25 to 20	150	135	9.5	66	65.5	57.0
4	20 to 15	160	140	7.9	59	71.0	60.0
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 232 **T8-C3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 40	130	125	16.2	86	54.5	51.5
2	40 to 35	130	123	14.3	81	54.5	50.5
3	35 to 30	130	119	11.5	71	54.5	48.5
4	30 to 25	140	125	9.6	64	60.0	51.5
5	25 to 20	150	130	8.0	57	65.5	54.5
6	20 to 15	160	135	6.8	51	71.0	57.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 233 **T8-D3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 50	130	125	16.2	86	54.5	51.5
2	50 to 40	130	123	14.3	81	54.5	50.5
3	40 to 35	130	119	11.5	71	54.5	48.5
4	35 to 30	130	115	9.6	62	54.5	46.0
5	30 to 25	140	120	8.0	55	60.0	49.0
6	25 to 20	150	125	6.8	49	65.5	51.5
7	20 to 15	160	130	5.8	43	71.0	54.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 234 **T8-D4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Above 50	130	123	14.3	81	54.5	50.5
2	50 to 40	130	120	12.2	74	54.5	49.0
3	40 to 35	130	115	9.6	62	54.5	46.0
4	35 to 30	130	110	7.9	52	54.5	43.5
5	30 to 25	140	115	6.8	46	60.0	46.0
6	25 to 20	150	120	5.8	41	65.5	49.0
7	20 to 15	160	125	5.1	37	71.0	51.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 235 **T9-B4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 35	140	133	14.2	82	60.0	56.0
2	35 to 30	140	130	12.0	75	60.0	54.5
3	30 to 25	150	135	9.5	66	65.5	57.0
4	25 to 20	160	140	7.9	59	71.0	60.0
5	20 to 15	160	135	6.8	51	71.0	57.0
6	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 236 **T9-C3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 40	140	135	16.2	87	60.0	57.0
2	40 to 35	140	133	14.2	82	60.0	56.0
3	35 to 30	140	129	11.5	73	60.0	54.0
4	30 to 25	150	135	9.5	66	65.5	57.0
5	25 to 20	160	140	7.9	59	71.0	60.0
6	20 to 15	160	135	6.8	51	71.0	57.0
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 237 **T9-C5S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	- - - - - - *°F*	- - - - - -	- - - - - - *pct*	- - - - - -	- - - - - - *°C*	- - - - - -
1	Above 40	140	130	12.0	75	60.0	54.5
2	40 to 35	140	126	10.0	66	60.0	52.0
3	35 to 30	140	120	8.0	55	60.0	49.0
4	30 to 25	150	125	6.8	49	65.5	51.5
5	25 to 20	160	130	5.8	43	71.0	54.5
6	20 to 15	160	125	5.1	37	71.0	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 238 **T9-C6S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	140	125	9.6	64	60.0	51.5
2	40 to 35	140	120	8.0	55	60.0	49.0
3	35 to 30	140	115	6.8	46	60.0	46.0
4	30 to 25	150	120	5.8	41	65.5	49.0
5	25 to 20	160	125	5.1	37	71.0	51.5
6	20 to 15	160	125	5.1	37	71.0	51.5
7	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 239 **T9-E5S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 60	140	130	12.0	75	60.0	54.5
2	60 to 50	140	126	10.0	66	60.0	[illegible]
3	50 to 40	140	120	8.0	55	60.0	[illegible]
4	40 to 35	140	115	6.8	46	60.0	[illegible]
5	35 to 30	140	110	5.8	38	60.0	[illegible]
6	30 to 25	150	115	5.0	34	65.5	[illegible]
7	25 to 20	160	125	5.1	37	71.0	[illegible]
8	20 to 15	160	125	5.1	37	71.0	[illegible]
9	15 to Final	160	110	3.4	21	71.0	43.5

Equalize and condition as necessary (see appendix A).

Table 240 **T10-A3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 30	140	135	16.2	87	60.0	57.0
2	30 to 25	150	143	14.0	83	65.5	61.5
3	25 to 20	160	149	11.1	75	71.0	65.0
4	20 to 15	170	155	9.3	69	76.5	68.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 241 **T10-B3S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 35	140	135	16.2	87	60.0	57.0
2	35 to 30	140	133	14.2	82	60.0	56.0
3	30 to 25	150	139	11.3	74	65.5	59.5
4	25 to 20	160	145	9.3	67	71.0	62.5
5	20 to 15	170	150	7.7	60	76.5	65.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 242 **T10-B4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 35	140	133	14.2	82	60.0	56.0
2	35 to 30	140	130	12.0	75	60.0	54.5
3	30 to 25	150	135	9.5	66	65.5	57.0
4	25 to 20	160	140	7.9	59	71.0	60.0
5	20 to 15	170	145	6.6	52	76.5	62.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 243 **T10-B5S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 35	140	130	12.0	75	60.0	54.5
2	35 to 30	140	126	10.0	66	60.0	52.0
3	30 to 25	150	130	8.0	57	65.5	54.5
4	25 to 20	160	135	6.8	51	71.0	57.0
5	20 to 15	170	140	5.7	45	76.5	60.0
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 244 **T10-C4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	140	133	14.2	82	60.0	56.0
2	40 to 35	140	130	12.0	75	60.0	54.5
3	35 to 30	140	125	9.6	64	60.0	51.5
4	30 to 25	150	130	8.0	57	65.5	54.5
5	25 to 20	160	135	6.8	51	71.0	57.0
6	20 to 15	170	140	5.7	45	76.5	60.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 245 **T10-D4S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	140	133	14.2	82	60.0	56.0
2	50 to 40	140	130	12.0	75	60.0	54.5
3	40 to 35	140	125	9.6	64	60.0	51.5
4	35 to 30	140	120	8.0	55	60.0	49.0
5	30 to 25	150	125	6.8	49	65.5	51.5
6	25 to 20	160	130	5.8	43	71.0	54.5
7	20 to 15	170	135	5.1	39	76.5	57.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 246 **T10-D5S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 50	140	130	12.0	75	60.0	54.5
2	50 to 40	140	126	10.0	66	60.0	52.0
3	40 to 35	140	120	8.0	55	60.0	49.0
4	35 to 30	140	115	6.8	46	60.0	46.0
5	30 to 25	150	120	5.8	41	65.5	49.0
6	25 to 20	160	125	5.1	37	71.0	51.5
7	20 to 15	170	135	5.1	39	76.5	57.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 247 **T10-E4S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	140	133	14.2	82	60.0	56.0
2	60 to 50	140	130	12.0	75	60.0	54.5
3	50 to 40	140	125	9.6	64	60.0	51.5
4	40 to 35	140	120	8.0	55	60.0	49.0
5	35 to 30	140	115	6.8	46	60.0	46.0
6	30 to 25	150	120	5.8	41	65.5	49.0
7	25 to 20	160	125	5.1	37	71.0	51.5
8	20 to 15	170	135	5.1	39	76.5	57.0
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 248 **T11-A2S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	150	146	17.0	90	65.5	63.5
2	30 to 25	160	155	15.5	88	71.0	68.5
3	25 to 20	160	152	12.8	81	71.0	66.5
4	20 to 15	170	156	9.7	71	76.5	69.0
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 249 **T11-A3S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	150	145	16.1	88	65.5	62.5
2	30 to 25	160	153	13.9	84	71.0	67.0
3	25 to 20	160	149	11.1	75	71.0	65.0
4	20 to 15	170	155	9.3	69	76.5	68.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 250 **T11-A4S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 30	150	143	14.0	83	65.5	61.5
2	30 to 25	160	150	11.6	77	71.0	65.5
3	25 to 20	160	145	9.3	67	71.0	62.5
4	20 to 15	170	150	7.7	60	76.5	65.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 251 **T11-B3S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 35	150	145	16.1	88	65.5	62.5
2	35 to 30	150	143	14.0	83	65.5	61.5
3	30 to 25	160	149	11.1	75	71.0	65.0
4	25 to 20	160	145	9.3	67	71.0	62.5
5	20 to 15	170	150	7.7	60	76.5	65.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 252 **T11-B4S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 35	150	143	14.0	83	65.5	61.5
2	35 to 30	150	140	11.8	76	65.5	60.0
3	30 to 25	160	145	9.3	67	71.0	62.5
4	25 to 20	160	140	7.9	59	71.0	60.0
5	20 to 15	170	145	6.6	52	76.5	62.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 253 **T11-B5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	150	140	11.8	76	65.5	60.0
2	35 to 30	150	136	9.9	68	65.5	57.5
3	30 to 25	160	140	7.9	59	71.0	60.0
4	25 to 20	160	135	6.8	51	71.0	57.0
5	20 to 15	170	140	5.7	45	76.5	60.0
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 254 **T11-C3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	150	145	16.1	88	65.5	62.5
2	40 to 35	150	143	14.0	83	65.5	61.5
3	35 to 30	150	139	11.3	74	65.5	59.5
4	30 to 25	160	145	9.3	67	71.0	62.5
5	25 to 20	160	140	7.9	59	71.0	60.0
6	20 to 15	170	145	6.6	52	76.5	62.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 255 **T11-C4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	150	143	14.0	83	65.5	61.5
2	40 to 35	150	140	11.8	76	65.5	60.0
3	35 to 30	150	135	9.5	66	65.5	57.0
4	30 to 25	160	140	7.9	59	71.0	60.0
5	25 to 20	160	135	6.8	51	71.0	57.0
6	20 to 15	170	140	5.7	45	76.5	60.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 256 **T11-C5S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 40	150	140	11.8	76	65.5	60.0
2	40 to 35	150	136	9.9	68	65.5	57.5
3	35 to 30	150	130	8.0	57	65.5	54.5
4	30 to 25	160	135	6.8	51	71.0	57.0
5	25 to 20	160	130	5.8	43	71.0	54.5
6	20 to 15	170	135	5.1	39	76.5	57.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 257 **T11-D2S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 50	150	146	17.0	90	65.5	63.5
2	50 to 40	150	145	16.1	88	65.5	62.5
3	40 to 35	150	142	13.3	81	65.5	61.0
4	35 to 30	150	136	9.9	68	65.5	57.5
5	30 to 25	160	140	7.9	59	71.0	60.0
6	25 to 20	160	135	6.8	51	71.0	57.0
7	20 to 15	170	140	5.7	45	76.5	60.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 258 **T11-D3S**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	- - - - - - °F - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - °C - - - - - -	
1	Above 50	150	145	16.1	88	65.5	62.5
2	50 to 40	150	143	14.0	83	65.5	61.5
3	40 to 35	150	139	11.3	74	65.5	59.5
4	35 to 30	150	135	9.5	66	65.5	57.0
5	30 to 25	160	140	7.9	59	71.0	60.0
6	25 to 20	160	135	6.8	51	71.0	57.0
7	20 to 15	170	140	5.7	45	76.5	60.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 259 **T11-D4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 50	150	143	14.0	83	65.5	61.5
2	50 to 40	150	140	11.8	76	65.5	60.0
3	40 to 35	150	135	9.5	66	65.5	57.0
4	35 to 30	150	130	8.0	57	65.5	54.5
5	30 to 25	160	135	6.8	51	71.0	57.0
6	25 to 20	160	130	5.8	43	71.0	54.5
7	20 to 15	170	135	5.1	39	76.5	57.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 260 **T11-D5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 50	150	140	11.8	76	65.5	60.0
2	50 to 40	150	136	9.9	68	65.5	57.5
3	40 to 35	150	130	8.0	57	65.5	54.5
4	35 to 30	150	125	6.8	49	65.5	51.5
5	30 to 25	160	130	5.8	43	71.0	54.5
6	25 to 20	160	125	5.1	37	71.0	51.5
7	20 to 15	170	135	5.1	39	76.5	57.0
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 261 **T12-A3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 30	160	155	15.5	88	71.0	68.5
2	30 to 25	170	163	13.4	84	76.5	72.5
3	25 to 20	170	159	10.9	76	76.5	70.5
4	20 to 15	180	165	9.1	70	82.0	74.0
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 262 **T12-A4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	160	153	13.9	84	71.0	67.0
2	30 to 25	170	160	11.4	78	76.5	71.0
3	25 to 20	170	155	9.3	69	76.5	68.5
4	20 to 15	180	160	7.7	62	82.0	71.0
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 263 **T12-A5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 30	160	150	11.6	77	71.0	65.5
2	30 to 25	170	156	9.7	71	76.5	69.0
3	25 to 20	170	150	7.7	60	76.5	65.5
4	20 to 15	180	155	6.5	54	82.0	68.5
5	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 264 **T12-B4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 35	160	153	13.9	84	71.0	67.0
2	35 to 30	160	150	11.6	77	71.0	65.5
3	30 to 25	170	155	9.3	69	76.5	68.5
4	25 to 20	170	150	7.7	60	76.5	65.5
5	20 to 15	180	155	6.5	54	82.0	68.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 265 **T12-B5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 35	160	150	11.6	77	71.0	65.5
2	35 to 30	160	146	9.7	69	71.0	63.5
3	30 to 25	170	150	7.7	60	76.5	65.5
4	25 to 20	170	145	6.6	52	76.5	62.5
5	20 to 15	180	150	5.7	47	82.0	65.5
6	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 266 **T12-C4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	160	153	13.9	84	71.0	67.0
2	40 to 35	160	150	11.6	77	71.0	65.5
3	35 to 30	160	145	9.3	67	71.0	62.5
4	30 to 25	170	150	7.7	60	76.5	65.5
5	25 to 20	170	145	6.6	52	76.5	62.5
6	20 to 15	180	150	5.7	47	82.0	65.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 267 **T12-C5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 40	160	150	11.6	77	71.0	65.5
2	40 to 35	160	146	9.7	69	71.0	63.5
3	35 to 30	160	140	7.9	59	71.0	60.0
4	30 to 25	170	145	6.6	52	76.5	62.5
5	25 to 20	170	140	5.7	45	76.5	60.0
6	20 to 15	180	145	5.0	41	82.0	62.5
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 268 **T12-D5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 50	160	150	11.6	77	71.0	65.5
2	50 to 40	160	146	9.7	69	71.0	63.5
3	40 to 35	160	140	7.9	59	71.0	60.0
4	35 to 30	160	135	6.8	51	71.0	57.0
5	30 to 25	170	140	5.7	45	76.5	60.0
6	25 to 20	170	135	5.1	39	76.5	57.0
7	20 to 15	180	145	5.0	41	82.0	62.5
8	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 269 **T12-E3S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 60	160	155	15.5	88	71.0	68.5
2	60 to 50	160	153	13.9	84	71.0	67.0
3	50 to 40	160	149	11.1	75	71.0	65.0
4	40 to 35	160	145	9.3	67	71.0	62.5
5	35 to 30	160	140	7.9	59	71.0	60.0
6	30 to 25	170	145	6.6	52	76.5	62.5
7	25 to 20	170	140	5.7	45	76.5	60.0
8	20 to 15	180	145	5.0	41	82.0	62.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 270 **T12-E5S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 60	160	150	11.6	77	71.0	65.5
2	60 to 50	160	146	9.7	69	71.0	63.5
3	50 to 40	160	140	7.9	59	71.0	60.0
4	40 to 35	160	135	6.8	51	71.0	57.0
5	35 to 30	160	130	5.8	43	71.0	54.5
6	30 to 25	170	135	5.1	39	76.5	57.0
7	25 to 20	170	135	5.1	39	76.5	57.0
8	20 to 15	180	145	5.0	41	82.0	62.5
9	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 271 **T13-C4S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	170	163	13.4	84	76.5	72.5
2	40 to 35	170	160	11.4	78	76.5	71.0
3	35 to 30	170	155	9.3	69	76.5	68.5
4	30 to 25	180	160	7.7	62	82.0	71.0
5	25 to 20	180	155	6.5	54	82.0	68.5
6	20 to 15	190	160	5.6	49	87.5	71.0
7	15 to Final	190	140	3.5	28	87.5	60.0

Equalize and condition as necessary (see appendix A).

Table 272 **T13-C6S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	170	155	9.3	69	76.5	68.5
2	40 to 35	170	150	7.7	60	76.5	65.5
3	35 to 30	170	145	6.6	52	76.5	62.5
4	30 to 25	180	150	5.7	47	82.0	65.5
5	25 to 20	180	145	5.0	41	82.0	62.5
6	20 to 15	190	155	5.0	43	87.5	68.5
7	15 to Final	190	140	3.5	28	87.5	60.0

Equalize and condition as necessary (see appendix A).

Table 273 **T14-C6S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	180	165	9.1	70	82.0	74.0
2	40 to 35	180	160	7.7	62	82.0	71.0
3	35 to 30	180	155	6.5	54	82.0	68.5
4	30 to 25	190	160	5.6	49	87.5	71.0
5	25 to 20	190	155	5.0	43	87.5	68.5
6	20 to 15	200	165	4.9	45	93.5	74.0
7	15 to Final	200	150	3.5	30	93.5	65.5

Equalize and condition as necessary (see appendix A).

Table 274 **T14-D6S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 50	180	165	9.1	70	82.0	74.0
2	50 to 40	180	160	7.7	62	82.0	71.0
3	40 to 35	180	155	6.5	54	82.0	68.5
4	35 to 30	180	150	5.7	47	82.0	65.5
5	30 to 25	190	155	5.0	43	87.5	68.5
6	25 to 20	190	155	5.0	43	87.5	68.5
7	20 to 15	200	165	4.9	45	93.5	74.0
8	15 to Final	200	150	3.5	30	93.5	65.5

Equalize and condition as necessary (see appendix A).

Table 275 **T14-E6S**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 60	180	165	9.1	70	82.0	74.0
2	60 to 50	180	160	7.7	62	82.0	71.0
3	50 to 40	180	155	6.5	54	82.0	68.5
4	40 to 35	180	150	5.7	47	82.0	65.5
5	35 to 30	180	145	5.0	41	82.0	62.5
6	30 to 25	190	155	5.0	43	87.5	68.5
7	25 to 20	190	155	5.0	43	87.5	68.5
8	20 to 15	200	165	4.9	45	93.5	74.0
9	15 to Final	200	150	3.5	30	93.5	65.5

Equalize and condition as necessary (see appendix A).

Table 276 (4/4 white pine) **(W-1)**

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		*pct*		°C	
1	Above 100	120	[1]105	9.6	60	49.0	[1]40.5
2	100 to 85	120	105	9.6	60	49.0	40.5
3	85 to 60	120	100	7.9	50	49.0	37.5
4	60 to 45	130	105	6.7	43	54.5	40.5
5	45 to 30	130	100	5.7	35	54.5	37.5
6	30 to 25	140	105	4.9	31	60.0	40.5
7	25 to 20	150	115	5.0	34	65.5	46.0
8	20 to 15	160	125	5.1	37	71.0	51.5
9	15 to Final	180	152	6.0	50	82.0	66.5

Equalize and condition as necessary (see appendix A).

[1] Spray off; vents working.

Table 277 (8/4 white pine) (W-2)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 100	120	[1]105	9.6	60	49.0	[1]40.5
2	100 to 60	120	105	9.6	60	49.0	40.5
3	60 to 40	130	110	7.9	52	54.5	43.5
4	40 to 30	130	105	6.7	43	54.5	40.5
5	30 to 25	140	111	6.0	40	60.0	44.0
6	25 to 20	150	115	5.0	34	65.5	46.0
7	20 to 15	160	125	5.1	37	71.0	51.5
8	15 to Final	180	152	6.0	50	82.0	66.5

Equalize and condition as necessary (see appendix A).

[1] Spray off; vents working.

Table 278 (12/4 white pine) (W-3)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 100	90	75	8.6	49	32.0	24.0
2	100 to 80	100	85	9.2	54	37.5	29.5
3	80 to 60	110	95	9.5	58	43.5	35.0
4	60 to 40	120	100	7.9	50	49.0	37.5
5	40 to 35	130	110	7.9	52	54.5	43.5
6	35 to 30	140	115	6.8	46	60.0	46.0
7	30 to 25	150	121	6.0	42	65.5	49.5
8	25 to 20	150	115	5.0	34	65.5	46.0
9	20 to 15	160	125	5.1	37	71.0	51.5
10	15 to Final	180	152	6.0	50	82.0	66.5

Equalize and condition as necessary (see appendix A).

Table 279 (4/4 & 6/4 SYP) (W-7)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	140	133	14.2	82	60.0	56.0
2	40 to 35	140	130	12.0	75	60.0	54.5
3	35 to 30	140	125	9.6	64	60.0	51.5
4	30 to 25	150	125	6.8	49	65.5	51.5
5	25 to 20	160	130	5.8	43	71.0	54.5
6	20 to 15	170	120	3.5	24	76.5	49.0
7	15 to Final	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 280 (3 x 5 SYP timbers) **(W-13)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 47	130	126	17.6	89	54.5	52.0
2	47 to 32	130	125	16.2	86	54.5	51.5
3	32 to 25	135	128	14.4	82	57.0	53.5
4	25 to 19	140	130	12.0	75	60.0	54.5
5	19 to 14	150	138	10.8	72	65.5	59.0
6	14 to 12	155	139	9.2	65	68.5	59.5
7	12 to 10	160	130	5.8	43	71.0	54.5

Equalize and condition as necessary (see appendix A).

Table 281 (4/4 & 5/4 SYP, steam heat) **(W-6)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F	°F	*pct*	*pct*	°C	°C
1	0 to 24	140	130	12.0	75	60.0	54.5
2	24 to 48	160	130	5.8	43	71.0	54.5
3	48 to 72	185	125	2.7	19	85.0	51.5
4	72 to 96	185	120	2.4	16	85.0	49.0

Equalize and condition as necessary (see appendix A).

Table 282 (8/4 SYP, steam heat) **(W-8)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F	°F	*pct*	*pct*	°C	°C
1	0 to 24	140	130	12.0	75	60.0	54.5
2	24 to 48	160	130	5.8	43	71.0	54.5
3	48 to 72	185	125	2.7	19	85.0	51.5
4	72 to 96	185	120	2.4	16	85.0	49.0
5	96 to 120	185	115	2.0	13	85.0	46.0

Equalize and condition as necessary (see appendix A).

Table 283 (10/4 & 12/4 SYP flitches) **(W-10)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 72	140	133	14.2	82	60.0	56.0
2	72 to 84	140	130	12.0	75	60.0	54.5
3	84 to 96	140	125	9.6	64	60.0	51.5
4	96 to 104	150	130	8.0	57	65.5	54.5
5	104 to 116	160	135	6.8	51	71.0	57.0
6	116 to 128	170	140	5.7	45	76.5	60.0
7	128 to 130	180	130	3.5	26	82.0	54.5

Equalize and condition as necessary (see appendix A).

Table 284 (12/4 SYP dimension, steam heat) **(W-12)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	130	[1]130	25.1	100	54.5	[1]54.5
2	24 to 48	140	130	12.0	75	60.0	54.5
3	48 to 72	160	130	5.8	43	71.0	54.5
4	72 to 96	185	125	2.7	19	85.0	51.5
5	96 to 120	185	120	2.4	16	85.0	49.0
6	120 to 144	185	115	2.0	13	85.0	46.0

Equalize and condition as necessary (see appendix A).

[1] Spray off; vents working.

Table 285 (3 x 5 SYP timbers) **(W-14)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 72	130	126	17.6	89	54.5	52.0
2	72 to 96	130	125	16.2	86	54.5	51.5
3	96 to 120	135	125	12.0	74	57.0	51.5
4	120 to 132	140	132	13.5	80	60.0	55.5
5	132 to 144	150	138	10.8	72	65.5	59.0
6	144 to 156	155	140	9.5	67	68.5	60.0
7	156 to 168	160	130	5.8	43	71.0	54.5

Equalize and condition as necessary (see appendix A).

Table 286 (Kz-1)

Step	Time	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 12	150	145	16.1	88	65.5	62.5
2	12 to 24	150	140	11.8	76	65.5	60.0
3	24 to 48	155	140	9.5	67	68.5	60.0
4	48 to 72	165	140	6.8	52	74.0	60.0
5	72 to 120 or until dry	180	140	4.5	36	82.0	60.0

Equalize and condition as necessary (see appendix A).

Table 287 (Kz-2)

Step	Time	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 12	150	145	16.1	88	65.5	62.5
2	12 to 48	150	140	11.8	76	65.5	60.0
3	48 to 84	155	140	9.5	67	68.5	60.0
4	84 to 132	165	140	6.8	52	74.0	60.0
5	132 to 156 or until dry	180	140	4.5	36	82.0	60.0

Equalize and condition as necessary (see appendix A).

Table 288 (Kz-3)

Step	Time	Temperature Dry-bulb	 Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	 Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 12	130	125	16.2	86	54.5	51.5
2	12 to 36	135	130	16.4	87	57.0	54.5
3	36 to 84	140	135	16.2	87	60.0	57.0
4	84 to 132	145	135	12.1	76	62.5	57.0
5	132 to 180	150	135	9.5	66	65.5	57.0
6	180 to 228	155	135	8.0	58	68.5	57.0
7	228 to 276	160	135	6.8	51	71.0	57.0
8	276 to 324 or until dry	170	135	5.1	39	76.5	57.0

Equalize and condition as necessary (see appendix A).

Table 289 **(Kz-4)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 48	130	120	12.2	74	54.5	49.0
2	48 to 72	135	120	9.6	63	57.0	49.0
3	72 to 96	140	125	9.6	64	60.0	51.5
4	96 to 120	145	125	8.0	56	62.5	51.5
5	120 to 144	150	125	6.8	49	65.5	51.5
6	144 to 168	155	125	5.8	42	68.5	51.5
7	168 to 192	160	130	5.8	43	71.0	54.5
8	192 to 216	165	135	5.8	44	74.0	57.0
9	216 to 240 or until dry	170	135	5.1	39	76.5	57.0

Equalize and condition as necessary (see appendix A).

Table 290 **(Kz-5)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	130	123	14.3	81	54.5	50.5
2	24 to 48	135	125	12.0	74	57.0	51.5
3	48 to 72	140	125	9.6	64	60.0	51.5
4	72 to 96	150	135	9.5	66	65.5	57.0
5	96 to 120	155	135	8.0	58	68.5	57.0
6	120 to 144	160	135	6.8	51	71.0	57.0
7	144 to 168 or until dry	180	140	4.5	36	82.0	60.0

Equalize and condition as necessary (see appendix A).

Table 291 **(Kz-6)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 12	180	170	11.2	79	82.0	76.5
2	12 to 36	180	165	9.1	70	82.0	74.0
3	36 to 60	180	155	6.5	54	82.0	68.5
4	60 to 84 or until dry	180	145	5.0	41	82.0	62.5

Equalize and condition as necessary (see appendix A).

Table 292 (Kz-7)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 216	110	106	17.6	87	43.5	41.0
2	216 to 312	110	104	15.2	81	43.5	40.0
3	312 to 384	115	104	11.6	69	46.0	40.0
4	384 to 432	120	104	9.2	58	49.0	40.0
5	432 to 492 or until dry	180	145	5.0	41	82.0	62.5

Equalize and condition as necessary (see appendix A).

Table 293 (Kz-8)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 360	110	106	17.6	87	43.5	41.0
2	360 to 504	110	104	15.2	81	43.5	40.0
3	504 to 576	110	100	12.0	70	43.5	37.5
4	576 to 672	115	100	9.6	59	46.0	37.5
5	672 to 816	120	100	7.9	50	49.0	37.5
6	816 to 984 or until dry	180	145	5.0	41	82.0	62.5

Equalize and condition as necessary (see appendix A).

Table 294 (Kz-9)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 12	170	164	14.1	86	76.5	73.5
2	12 to 24	170	160	11.4	78	76.5	71.0
3	24 to 48	175	160	9.1	69	79.5	71.0
4	48 to 72	180	160	7.7	62	82.0	71.0
5	72 to 96 or until dry	180	140	4.5	36	82.0	60.0

Equalize and condition as necessary (see appendix A).

Table 295 (Kz-10)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		*pct*		°C	
1	0 to 24	130	115	9.6	62	54.5	46.0
2	24 to 48	140	120	8.0	55	60.0	49.0
3	48 to 72	160	135	6.8	51	71.0	57.0
4	72 to 96 or until dry	170	135	5.1	39	76.5	57.0

Equalize and condition as necessary (see appendix A).

Table 296 (Kz-11)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		*pct*		°C	
1	0 to 24	110	100	12.0	70	43.5	37.5
2	24 to 48	115	105	12.1	71	46.0	40.5
3	48 to 72	120	110	12.1	72	49.0	43.5
4	72 to 96	125	110	9.6	61	51.5	43.5
5	96 to 120	130	115	9.6	62	54.5	46.0
6	120 to 144	140	120	8.0	55	60.0	49.0
7	144 to 168	150	125	6.8	49	65.5	51.5
8	168 to 192	160	130	5.8	43	71.0	54.5
9	192 to 216 or until dry	170	135	5.1	39	76.5	57.0

Equalize and condition as necessary (see appendix A).

Table 297 (Kn-4)

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		*pct*		°C	
1	0 to 24	150	130	8.0	57	65.5	54.5
2	24 to 48	150	120	5.8	41	65.5	49.0
3	48 to 72 or until dry	170	130	4.4	33	76.5	54.5

Equalize and condition as necessary (see appendix A).

Table 298 **(Kn-7)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	160	140	7.8	58	71.0	60.0
2	24 to 36	165	140	6.6	51	74.0	60.0
3	36 to 60 or until dry	170	140	4.4	33	76.5	60.0

Equalize and condition as necessary (see appendix A).

Table 299 **(Kn-9)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	130	115	9.6	62	54.5	46.0
2	24 to 48	140	115	6.8	46	60.0	46.0
3	48 to 72	150	120	5.8	41	65.5	49.0
4	72 to 84 or until dry	170	140	4.4	33	76.5	60.0

Equalize and condition as necessary (see appendix A).

Table 300 **(Kn-10)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	130	115	9.6	62	54.5	46.0
2	24 to 48	140	115	6.8	46	60.0	46.0
3	48 to 72	145	115	5.8	39	62.5	46.0
4	72 to 96	160	125	5.0	36	71.0	51.5
5	96 to 136	170	140	4.4	33	76.5	60.0

Equalize and condition as necessary (see appendix A).

Table 301 **(Kn-12-1)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 16	120	105	9.6	60	49.0	40.5
2	16 to 24	125	105	7.9	51	51.5	40.5
3	24 to 36	130	105	6.7	43	54.5	40.5
4	36 to 48	135	115	7.9	53	57.0	46.0
5	48 to 60	145	120	6.7	47	62.5	49.0
6	60 to 72	150	125	6.7	48	65.5	51.5
7	72 to 96	160	130	5.8	43	71.0	54.5
8	96 to 108	165	135	5.8	44	74.0	57.0
9	108 to 120	170	140	5.7	45	76.5	60.0
10	120 to 144	170	135	5.1	39	76.5	57.0
11	144 to 156	180	140	4.4	35	82.0	60.0

Equalize and condition as necessary (see appendix A).

Table 302 **(Kn-13)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	115	108	14.3	79	46.0	42.0
2	24 to 48	120	110	12.1	72	49.0	43.5
3	48 to 72	125	115	12.2	73	51.5	46.0
4	72 to 96	130	120	12.0	73	54.5	49.0
5	96 to 216	140	130	12.0	75	60.0	54.5
6	216 to 264	145	130	9.6	65	62.5	54.5
7	264 to 336	150	135	9.5	66	65.5	57.0
8	336 to 408	155	140	9.3	66	68.5	60.0
9	408 to 504 or until dry	160	140	7.8	58	71.0	60.0

Equalize and condition as necessary (see appendix A).

Table 303 **(Kn-14)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	120	Vents open	—	—	49.0	—
2	24 to 48	130	100	5.7	35	54.5	37.5
3	48 to 72	140	105	4.9	31	60.0	40.5
4	72 to 84	150	105	3.8	23	65.5	40.5
5	84 to 96 or until dry	170	120	3.5	24	76.5	49.0

No conditioning.

Table 304 **(Kn-15)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F	°F	pct	pct	°C	°C
1	0 to 48	120	Vents open	—	—	49.0	—
2	48 to 72	125	Vents open	—	—	51.5	—
3	72 to 84	130	Vents open	—	—	54.5	—
4	84 to 96	135	Vents open	—	—	57.0	—
5	96 to 120	140	Vents open	—	—	60.0	—
6	120 to 132	150	100	3.2	18	65.5	37.5
7	132 to 144	155	105	3.2	19	68.5	40.5
8	144 to 168 or until dry	160	110	3.4	21	71.0	43.5

No conditioning.

Table 305 **(Kn-19)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F	°F	pct	pct	°C	°C
1	0 to 24	105	Vents open	—	—	40.5	—
2	24 to 48	110	Vents open	—	—	43.0	—
3	48 to 72	115	Vents open	—	—	46.0	—
4	72 to 96	120	Vents open	—	—	49.0	—
5	96 to 120	125	100	6.5	41	51.5	37.5
6	120 to 144	130	100	5.7	35	54.5	37.5
7	144 to 168	135	105	5.6	36	57.0	40.5
8	168 to 192	140	105	4.9	31	60.0	40.5
9	192 to 216	145	105	4.2	26	62.5	40.5
10	216 to 240	150	108	4.0	25	65.5	42.0
11	240 to 264	155	108	3.6	22	68.5	42.0
12	264 to 288 or until dry	160	110	3.4	21	71.0	43.5

No conditioning.

Table 306 **(Kn-20)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F	°F	pct	pct	°C	°C
1	0 to 12	115	Vents open	—	—	46.0	—
2	12 to 36	130	95	4.7	27	54.5	35.0
3	36 to 60	140	95	3.5	19	60.0	35.0
4	60 to 72	150	100	3.2	18	65.5	37.5
5	72 to 96 or until dry	160	115	3.8	25	71.0	46.0

No conditioning.

Table 307 **(Kn-21)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 168	105	Vents open	—	—	46.5	—
2	168 to 336	130	105	6.7	43	54.5	40.5
3	336 to 504	145	105	4.2	26	62.5	40.5
4	504 to 672	150	105	3.8	23	65.5	40.5
5	672 to 840	160	110	3.4	21	71.0	43.5

No conditioning.

Table 308 **R-5**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 24	115	[1]100	9.6	58	46.0	[1]37.5
2	24 to 72	120	[1]100	7.9	49	49.0	[1]37.5
3	[2]72 to 96	125	[1]105	8.0	51	51.5	[1]40.5
4	96 to 120	130	[1]110	8.0	52	54.5	[1]43.5
5	120 to 144	140	[1]120	8.0	54	60.0	[1]49.0
6	144 to 156 or until dry	140	[3]127	10.4	68	60.0	[3]52.5

[1] Spray off; vents working.

[2] If drying partly air-dried stock, you may not want to go higher than settings in step 3 so as not to aggravate stain that may have occurred in the yard.

[3] Spray on; vents working.

Table 309 **(Ca-1)**

Step	Time	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 12	110	[1]100	12.0	70	43.5	37.5
2	12 to 36	120	[1]110	12.1	72	49.0	[1]43.5
3	36 to 60	120	[1]105	9.6	60	49.0	[1]40.5
4	60 to 84	120	[1]100	7.8	49	49.0	[1]37.5
5	84 to 108	130	[1]105	6.7	43	54.5	[1]40.5
6	Equalize	140	[2]130	12.0	75	60.0	[2]54.5

[1] Spray off; vents working.

[2] If wet bulb will not reach 130, turn on spray. Check moisture content of lumber after 36 h. Hold until wettest samples are down to desired target moisture content.

Table 310 **R-6**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 60	110	95	9.5	57	43.5	35.0
2	60 to 50	115	95	7.8	48	46.0	35.0
3	50 to 40	120	95	6.6	40	49.0	35.0
4	40 to 35	125	95	5.5	33	51.5	35.0
5	35 to 30	130	95	4.6	26	54.5	35.0
6	30 to 25	140	105	4.8	27	60.0	40.5
7	25 to 20	150	115	5.1	35	65.5	46.0
8	20 to 15	160	125	5.1	36	71.0	51.5
9	15 to Final	170	130	4.4	33	76.5	54.5

Table 311 **R-7**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 60	110	98	10.8	65	43.5	36.5
2	60 to 50	112	95	8.9	52	44.5	35.0
3	50 to 40	117	95	7.4	43	47.0	35.0
4	40 to 35	120	95	6.6	40	49.0	35.0
5	35 to 30	125	95	5.5	33	51.5	35.0
6	30 to 25	130	95	4.6	26	54.5	35.0
7	25 to 20	140	105	4.8	27	60.0	40.5
8	20 to 15	160	120	4.3	31	71.0	49.0
9	15 to Final	170	130	4.4	33	76.5	54.5

Table 312 **T9-F3S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Above 70	140	135	15.8	87	60.0	57.0
2	70 to 60	140	133	13.8	82	60.0	56.0
3	60 to 50	140	129	11.4	73	60.0	54.0
4	50 to 40	140	125	9.6	64	60.0	51.5
5	40 to 35	140	120	8.0	54	60.0	49.0
6	35 to 30	140	115	6.9	46	60.0	46.0
7	30 to 25	150	120	5.8	41	65.5	49.0
8	25 to 20	160	125	5.1	37	71.0	51.5
9	20 to 15	160	125	5.1	37	71.0	51.5
10	15 to Final	160	110	3.2	21	71.0	43.5

Table 313 **T10-F6S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 70	140	125	9.6	64	60.0	51.5
2	70 to 60	140	120	8.0	54	60.0	49.0
3	60 to 50	140	115	6.9	46	60.0	46.0
4	50 to 40	140	110	5.8	38	60.0	43.5
5	40 to 30	140	105	5.0	31	60.0	40.5
6	30 to 25	150	115	5.1	35	65.5	46.0
7	25 to 20	160	125	5.1	37	71.0	51.5
8	20 to 15	170	135	5.1	39	76.5	57.0
9	15 to Final	180	130	3.3	26	82.0	54.5

Table 314 **T13-F5S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 70	170	160	11.3	78	76.5	71.0
2	70 to 60	170	156	9.6	70	76.5	69.0
3	60 to 50	170	150	7.8	60	76.5	65.5
4	50 to 40	170	145	6.7	52	76.5	62.5
5	40 to 35	170	140	5.7	45	76.5	60.0
6	35 to 30	170	135	5.1	39	76.5	57.0
7	30 to 25	180	145	5.1	41	82.0	62.5
8	25 to 20	180	145	5.1	41	82.0	62.5
9	20 to 15	190	155	4.9	43	87.5	68.5
10	15 to Final	190	140	3.3	28	87.5	60.0

Table 315 **T13-F6S**

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 70	170	155	9.2	69	76.5	68.5
2	70 to 60	170	150	7.8	60	76.5	65.5
3	60 to 50	170	145	6.7	52	76.5	62.5
4	50 to 40	170	140	5.7	45	76.5	60.0
5	40 to 30	170	140	5.1	39	76.5	60.0
6	30 to 25	180	145	5.1	41	82.0	62.5
7	25 to 20	180	145	5.1	41	82.0	62.5
8	20 to 15	190	155	4.9	43	87.5	68.5
9	15 to Final	190	140	3.3	28	87.5	60.0

Table 316 **T13-F8S**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 70	170	145	6.7	52	76.5	62.5
2	70 to 60	170	140	5.7	45	76.5	60.0
3	60 to 50	170	135	5.1	39	76.5	57.0
4	50 to 40	170	135	5.1	39	76.5	57.0
5	40 to 30	170	135	5.1	39	76.5	57.0
6	30 to 25	180	145	5.1	41	82.0	62.5
7	25 to 20	180	145	5.1	41	82.0	62.5
8	20 to 15	190	155	4.9	43	87.5	68.5
9	15 to Final	190	140	3.3	28	87.5	60.0

High-Temperature Schedules: Hardwoods and Softwoods (Tables 400-420)

This group of tables contains high-temperature schedules, i.e., dry-bulb temperatures exceed 212 °F at some point in the schedule or from start-up. Experience with these schedules varies with species, and **we suggest they be used with care, especially with the hardwoods.**

Table 400 **(Kz-12)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 12	230	205	5.8	61	110.0	96.0
2	12 to 24	230	200	5.1	55	110.0	93.5
3	24 to 36 or until dry	230	195	4.4	49	110.0	90.5

Equalize and condition as necessary (see appendix A).

Table 401 (5/4 C&BTR SYP direct-fired) **(W-4)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 16 or until dry	220	180	4.1	42	104.5	82.0

Equalize and condition as necessary (see appendix A).

Table 402 (1-inch random width C&BTR SYP direct-fired) **(W-5)**

		Temperature		Equilibrium moisture content	Relative humidity	Temperature	
Step	Time	Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	h	*°F*		*pct*		*°C*	
1	0 to 15 or until dry	220	180	4.1	42	104.5	82.0

Equalize and condition as necessary (see appendix A).

Table 403 (2 x 4 - 2 x 10 SYP direct-fired) **(W-9)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	- - - - - - *°F* - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - *°C* - - - - - -	
1	0 to 24 or until dry	240	180	2.5	29	115.5	82.0

Equalize and condition as necessary (see appendix A).

Table 404 (4 x 4 SYP direct-fired) **(W-15)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	- - - - - - *°F* - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - *°C* - - - - - -	
1	0 to 41 or until dry	220	165	3.0	29	104.5	74.0

Equalize and condition as necessary (see appendix A).

Table 405 **(Kn-72)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	- - - - - - *°F* - - - - - -		- - - - - - *pct* - - - - - -		- - - - - - *°C* - - - - - -	
1	0 to 8	220	210	10.2	82	104.5	99.0
2	8 to 24	220	205	8.2	74	104.5	96.0
3	24 to 60	220	200	6.8	66	104.5	93.5
4	60 to 96	225	200	5.8	60	107.0	93.5
5	96 or until dry	235	200	4.4	50	112.5	93.5

Equalize and condition as necessary (see appendix A).

Table 406 **(Kn-73)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F	°F	pct	pct	°C	°C
1	0 to 6 or 2 h past period when DBT & WBT leveled off	212	212	20.1	100	100.0	100.0
2	6 to 16	240	190	3.1	36	115.5	87.5
3	16 until dry (30-36 h)[1]	240	170	2.0	22	115.5	76.5
Equalize and condition as necessary (see appendix A).							

[1] Pull charge when sap and corky heartwood is dry.

Table 407 **(Kn-74)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F	°F	pct	pct	°C	°C
1	0 to 4	210	210	20.3	100	99.0	99.0
2	4 to 8	220	210	10.2	82	104.5	99.0
3	8 to 12	230	205	5.8	61	110.0	96.0
4	12 to 18	230	200	5.1	55	110.0	93.5
5	18 to 24	230	190	4.0	44	110.0	87.5
6	24 until dry	230	180	3.2	35	110.0	82.0
Equalize and condition as necessary (see appendix A).							

Table 408 **(ECan-25)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Warm-up (3 h)	201	201	20.9	100	94.0	94.0
2	Green to dry	220	201	7.1	68	104.5	94.0
3	Conditioning	205	201	14.9	92	96.0	94.0

Table 409 **(ECan-26)**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Warm-up (2 h)	—	212	—	—	—	100.0
2	Above 30	230	208	6.3	65	110.0	97.5
3	Below 30	230	192	4.2	46	110.0	89.0
4	Conditioning	190	180	11.1	80	87.5	82.0

Table 410 **(ECan-27)**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Warm-up (2 h)	—	210	—	—	—	98.0
2	Above 35	235	200	4.4	50	112.5	93.5
3	35 to 20	240	190	3.1	36	115.5	87.5
4	Below 20	245	180	2.2	26	118.5	82.0
5	Conditioning	190	180	11.1	80	87.5	82.0

Table 411 **(ECan-28)**

		Temperature		Equilibrium		Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	------ °F ------		------ *pct* ------		------ °C ------	
1	Warm-up (3 h)	—	210	—	—	—	98.0
2	1/2 h	240	210	4.9	56	115.5	99.0
3	Green to dry	240	200	3.8	45	115.5	93.5
4	Conditioning	219	212	11.9	87	104.0	100.0

Table 412 (lodgepole, jack pine, and white spruce studs) **(WCan-4)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	------ °F ------		------ *pct* ------		------ °C ------	
1	0 to 6	180	160	7.7	62	82.0	71.0
2	6 to 12	180	160	7.7	62	82.0	71.0
3	12 to 26	220	185	4.6	48	104.5	85.0
4	26 to 35	220	180	4.1	42	104.5	82.0
5	35 to 46	220	160	2.7	26	104.5	71.0

Equalize and condition as necessary (see appendix A).

Table 413 (white spruce 2-in dimension (gas-fired kilns)) **(WCan-6)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 28	230	185	3.5	39	110.0	85.0

Equalize and condition as necessary (see appendix A).

Table 414 (Douglas-fir and larch 2- x 4-in dimension) **(WCan-16)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 12	225	190	4.5	48	107.0	87.5
2	12 to 21	240	190	3.1	36	115.5	87.5
3	21 to 24	205	180	6.2	58	96.0	82.0

Equalize and condition as necessary (see appendix A).

Table 415 (western hemlock and amabilis fir 2- x 4-in dimension) **(WCan-23)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 42	240	205	4.3	50	115.5	96.0

Equalize and condition as necessary (see appendix A).

Table 416 (alpine fir 2-in dimension) **(WCan-26)**

		Temperature		Equilibrium		Temperature	
Step	Time	Dry-bulb	Wet-bulb	moisture content	Relative humidity	Dry-bulb	Wet-bulb
	h	°F		pct		°C	
1	0 to 54	235	180	2.9	32	112.5	82.0
2	54 to 58	Steam			100		
3	58 to 62	235	180	2.9	32	112.5	82.0
4	62 to 66	Steam			100		
5	66 to 90	235	180	2.9	32	112.5	82.0

Equalize and condition as necessary (see appendix A).

Table 417 (aspen and balsam poplar (mixed) 2- x 4-in dimension) **(WCan-43)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F		pct		°C	
1	0 to 2	180	180	22.3	100	82.0	82.0
2	2 to 59	250	180	2.0	24	121.0	82.0
3	59 to 61	Kiln off-no fan		—	—	Kiln off-no fan	
4	61 to 79	204	196	11.6	84	95.5	91.0
5	79 to 94	250	180	2.0	24	121.0	82.0

Equalize and condition as necessary (see appendix A).

Table 418 (4/4 red alder) **(K-13)**

Step	Time	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	h	°F		pct		°C	
1	0 to 3	215	210	13.3	90	101.5	99.0
2	3 to 9	210	210	20.3	100	99.0	99.0
3	9 to 21	230	205	5.8	61	110.0	96.0
4	21 to 36	230	200	5.1	55	110.0	93.5
5	36 to 39	230	195	4.4	49	110.0	90.5
6	39 to 51	215	210	13.3	90	101.5	99.0
7	51 to 59	Cool lumber in kiln					

Equalize and condition as necessary (see appendix A).

Table 419 (4/4 lumber) **(FPL)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F		pct		°C	
1	Green to 7 pct (20-26 h)	230	180	3.2	35	110.0	82.0
2	Cool to below boiling point						
3	Equalizing (11-16 h)	203	160	4.0	37	95.0	71.0
4	Conditioning (10-12 h)	192	180	9.9	76	89.0	82.0

Table 420 (7/4 SDR flitches) **(FPL)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	*°F*	*°F*	*pct*	*pct*	*°C*	*°C*
1	Green to 10 pct (20-26 h)	235	180	2.9	32	112.5	82.0
2	Cool to below boiling point						
3	Equalizing (24-48 h)	200	188	9.8	77	93.5	86.5

Miscellaneous Schedules (Tables 500-517)

This group of tables contains schedules in the conventional (≤ 180 °F) and elevated temperature (180-212 °F) range that have been adapted to the common format of this publication. Change points in the schedule are based on moisture content of the wood rather than elapsed time in the kiln.

Table 500 (J11-12)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 35	112	109	18.5	89	45.0	43.0
2	35 to 30	112	107	15.9	83	45.0	42.0
3	30 to 25	121	112	12.9	75	50.0	45.0
4	25 to 20	130	114	9.2	60	55.0	46.0
5	20 to 15	139	112	6.4	43	60.0	45.0
6	15 to Final	157	112	3.9	25	70.0	45.0

Equalize and condition as necessary (see appendix A).

Table 501 (J14-15)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Above 55	112	109	18.5	89	45.0	43.0
2	55 to 45	112	107	15.9	83	45.0	42.0
3	45 to 35	121	112	12.9	75	50.0	45.0
4	35 to 27	130	116	9.9	64	55.0	47.0
5	27 to 25	130	109	7.6	50	55.0	43.0
6	25 to 20	139	118	7.6	52	60.0	48.0
7	20 to 15	148	116	5.5	38	65.0	47.0
8	15 to Final	157	112	3.9	25	70.0	45.0

Equalize and condition as necessary (see appendix A).

Table 502 (J22-22)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	121	116	15.8	84	50.0	47.0
2	40 to 35	121	114	14.4	80	50.0	46.0
3	35 to 30	130	120	11.7	72	55.0	49.0
4	30 to 25	139	121	8.5	58	60.0	50.0
5	25 to 20	148	121	6.4	45	65.0	50.0
6	20 to 15	157	118	4.5	31	70.0	48.0
7	15 to Final	166	112	3.1	20	75.0	45.0

Equalize and condition as necessary (see appendix A).

Table 503 (J24-24)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	121	116	15.8	84	50.0	47.0
2	50 to 45	121	113	13.5	77	50.0	45.0
3	45 to 40	130	122	13.4	78	55.0	50.0
4	40 to 35	130	118	10.8	68	55.0	48.0
5	35 to 30	139	123	9.2	62	60.0	51.0
6	30 to 25	139	118	7.6	52	60.0	48.0
7	25 to 20	148	120	6.1	43	65.0	49.0
8	20 to 15	157	120	4.8	33	70.0	49.0
9	15 to Final	166	112	3.1	20	75.0	45.0

Equalize and condition as necessary (see appendix A).

Table 504 (J32-22)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 40	130	125	15.8	85	55.0	52.0
2	40 to 35	130	123	14.3	81	55.0	51.0
3	35 to 30	139	129	11.6	73	60.0	54.0
4	30 to 25	148	130	8.5	60	65.0	55.0
5	25 to 20	157	130	6.4	47	70.0	55.0
6	20 to 15	166	127	4.5	33	75.0	53.0
7	15 to Final	175	121	3.2	22	80.0	50.0

Equalize and condition as necessary (see appendix A).

Table 505 **(J33-32)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 45	130	123	14.3	81	55.0	51.0
2	45 to 40	130	121	12.8	76	55.0	50.0
3	40 to 35	139	127	10.6	69	60.0	53.0
4	35 to 30	139	121	8.5	58	60.0	50.0
5	30 to 25	148	121	6.4	45	65.0	50.0
6	25 to 20	157	120	4.8	33	70.0	49.0
7	20 to 15	166	112	3.1	20	75.0	45.0
8	15 to Final	175	121	3.2	22	80.0	50.0

Equalize and condition as necessary (see appendix A).

Table 506 **(J35-35)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 70	130	123	14.3	81	55.0	51.0
2	70 to 60	130	121	12.8	76	55.0	50.0
3	60 to 55	130	118	10.8	68	55.0	48.0
4	55 to 50	139	126	10.4	68	60.0	53.0
5	50 to 40	139	121	8.5	58	60.0	50.0
6	40 to 30	148	125	7.2	51	65.0	52.0
7	30 to 22	157	125	5.5	40	70.0	52.0
8	22 to 15	166	125	4.3	31	75.0	52.0
9	15 to Final	175	121	3.2	22	80.0	50.0

Equalize and condition as necessary (see appendix A).

Table 507 **(J35-44)**

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	*pct*	*pct*	°C	°C
1	Above 65	130	121	12.8	76	55.0	50.0
2	65 to 55	130	118	10.8	68	55.0	48.0
3	55 to 45	139	123	9.2	62	60.0	51.0
4	45 to 40	139	116	7.2	49	60.0	47.0
5	40 to 35	148	125	7.2	51	65.0	52.0
6	35 to 30	148	116	5.5	38	65.0	47.0
7	30 to 27	157	125	5.5	40	70.0	52.0
8	27 to 22	157	114	4.1	27	70.0	46.0
9	22 to 20	166	123	4.1	29	75.0	51.0
10	20 to 15	166	112	3.1	20	75.0	45.0
11	15 to Final	175	121	3.2	22	80.0	50.0

Equalize and condition as necessary (see appendix A).

Table 508 (J42-42)

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	139	130	12.6	77	60.0	55.0
2	50 to 45	139	127	10.6	69	60.0	53.0
3	45 to 40	139	123	9.2	62	60.0	51.0
4	40 to 35	139	118	7.6	52	60.0	48.0
5	35 to 30	148	121	6.4	45	65.0	50.0
6	30 to 25	157	121	5.0	35	70.0	50.0
7	25 to 20	166	121	4.0	28	75.0	50.0
8	20 to 15	175	121	3.2	22	80.0	50.0
9	15 to Final	184	130	3.2	24	85.0	50.0

Equalize and condition as necessary (see appendix A).

Table 509 (J43-33)

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	139	132	14.2	82	60.0	56.0
2	50 to 45	139	130	12.6	77	60.0	55.0
3	45 to 40	139	127	10.6	69	60.0	53.0
4	40 to 35	148	132	9.2	64	65.0	56.0
5	35 to 30	148	127	7.6	54	65.0	53.0
6	30 to 25	157	129	6.1	45	70.0	54.0
7	25 to 20	166	129	4.8	35	75.0	54.0
8	20 to 15	175	121	3.2	22	80.0	50.0
9	15 to Final	184	130	3.2	24	85.0	55.0

Equalize and condition as necessary (see appendix A).

Table 510 (J43-44)

Step	Moisture content	Temperature Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 65	139	130	12.6	77	60.0	55.0
2	65 to 55	139	127	10.6	69	60.0	53.0
3	55 to 45	139	123	9.2	62	60.0	51.0
4	45 to 40	139	116	7.2	49	60.0	47.0
5	40 to 35	148	125	7.2	51	65.0	52.0
7	35 to 30	148	116	5.5	38	65.0	47.0
8	30 to 27	157	125	5.5	40	70.0	52.0
8	27 to 25	157	114	4.1	27	70.0	46.0
10	25 to 20	166	123	4.1	29	75.0	51.0
11	20 to 15	175	121	3.2	22	80.0	50.0
12	15 to Final	184	130	3.2	24	85.0	55.0

Equalize and condition as necessary (see appendix A).

Table 511 (J44-34)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 60	139	132	14.2	82	60.0	56.0
2	60 to 50	139	130	12.6	77	60.0	55.0
3	50 to 45	139	125	10.0	66	60.0	52.0
4	45 to 40	148	134	9.8	67	65.0	57.0
5	40 to 35	148	127	7.6	54	65.0	53.0
6	35 to 30	157	136	7.6	56	70.0	58.0
7	30 to 27	157	125	5.5	40	70.0	52.0
8	27 to 22	166	134	5.5	42	75.0	57.0
9	22 to 20	166	121	4.0	28	75.0	50.0
10	20 to 15	175	130	4.0	30	80.0	55.0
11	15 to Final	184	130	3.2	24	85.0	55.0

Equalize and condition as necessary (see appendix A).

Table 512 (J44-43)

Step	Moisture content	Temperature		Equilibrium moisture content	Relative humidity	Temperature	
		Dry-bulb	Wet-bulb			Dry-bulb	Wet-bulb
	pct	*°F*		*pct*		*°C*	
1	Above 55	139	130	12.6	77	60.0	55.0
2	55 to 45	139	127	10.6	69	60.0	53.0
3	45 to 40	148	130	8.5	60	65.0	55.0
4	40 to 35	148	125	7.2	51	65.0	52.0
5	35 to 30	157	129	6.1	45	70.0	54.0
6	30 to 27	157	121	5.0	35	70.0	50.0
7	27 to 25	166	130	5.0	37	75.0	55.0
8	25 to 20	166	121	4.0	28	75.0	50.0
9	20 to 15	175	121	3.2	22	80.0	50.0
10	15 to Final	184	130	3.2	24	85.0	55.0

Equalize and condition as necessary (see appendix A).

Table 513 (J52-35)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 70	157	150	13.7	83	70.0	66.0
2	70 to 60	157	148	12.4	79	70.0	65.0
3	60 to 50	157	145	10.5	72	70.0	63.0
4	50 to 40	157	139	8.5	62	70.0	60.0
5	40 to 33	157	134	7.2	53	70.0	57.0
6	33 to 30	166	143	7.0	54	75.0	62.0
7	30 to 27	166	134	5.5	42	75.0	57.0
8	27 to 22	175	143	5.4	43	80.0	62.0
9	22 to 20	175	134	4.3	33	80.0	57.0
10	20 to 15	184	143	4.3	35	85.0	62.0
11	15 to Final	193	139	3.2	25	90.0	60.0

Equalize and condition as necessary (see appendix A).

Table 514 (J52-53)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 60	157	145	10.5	72	70.0	63.0
2	60 to 50	157	141	9.1	65	70.0	61.0
3	50 to 40	157	134	7.2	53	70.0	57.0
4	40 to 33	157	123	5.2	37	70.0	51.0
5	33 to 30	166	132	5.2	39	75.0	56.0
6	30 to 27	166	121	4.0	28	75.0	50.0
7	27 to 25	175	130	4.0	30	80.0	55.0
8	25 to 20	175	121	3.2	22	80.0	50.0
9	20 to 15	184	130	3.2	24	85.0	55.0
10	15 to Final	193	139	3.2	25	90.0	60.0

Equalize and condition as necessary (see appendix A).

Table 515 (J53-51)

		Temperature				Temperature	
Step	Moisture content	Dry-bulb	Wet-bulb	Equilibrium moisture content	Relative humidity	Dry-bulb	Wet-bulb
	pct	°F		pct		°C	
1	Above 50	157	145	10.5	72	70.0	63.0
2	50 to 45	157	141	9.1	65	70.0	61.0
3	45 to 40	157	136	7.6	56	70.0	58.0
4	40 to 35	166	138	6.0	46	75.0	59.0
5	35 to 30	166	130	5.0	37	75.0	55.0
6	30 to 25	175	130	4.0	30	80.0	55.0
7	25 to 22	175	121	3.2	22	80.0	50.0
8	22 to 15	184	130	3.2	24	85.0	55.0
9	15 to Final	193	139	3.2	25	90.0	60.0

Equalize and condition as necessary (see appendix A).

Table 516 (Nz-1)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	Green to 100	140	130	12.0	75	60.0	54.0
2	100 to 60	140	125	9.6	64	60.0	51.0
3	60 to Final	160	140	7.2	54	71.0	60.0
4	Conditioning	170	168	18.8	95	77.0	76.0

Table 517 (Nz-2)

Step	Moisture content	Temperature Dry-bulb	Temperature Wet-bulb	Equilibrium moisture content	Relative humidity	Temperature Dry-bulb	Temperature Wet-bulb
	pct	°F	°F	pct	pct	°C	°C
1	30 to 25	140	130	12.0	75	60.0	54.0
2	25 to 20	150	135	9.5	66	66.0	57.0
3	20 to Final	150	130	8.0	57	66.0	54.0
4	Conditioning	160	158	19.4	95	71.0	70.0

Appendix A
Equalizing and Conditioning Treatments

Equalizing Treatments

Equalizing treatments are used to reduce the moisture content (MC) spread within boards as well as between the wettest and driest boards in a kiln charge of lumber. An equalizing treatment is suggested when the spread between the driest and the wettest kiln sample boards exceeds about 3 percent MC in the final stages of drying. Begin the equalizing treatment when the driest sample is 3 percent below the final target MC and continue until the wettest piece has dried to the target MC.[5]

Suggested dry-bulb temperature (DBT) and wet-bulb temperature (WBT) combinations for several final target MC's are presented in table A1. Always operate at the highest temperatures at which you can control **both** DBT and WBT dependably. For example if the final target MC is 7 percent, then use 180 °F DBT and 137 °F WBT, or a 170 °F DBT and a 127 °F WBT, etc.

Conditioning Treatments

Conditioning treatments are used to relieve the drying stresses and tension set (often called casehardening) that are present at the end of kiln drying and equalizing. Any lumber that will be resawed, ripped, or machined non-uniformly should be conditioned to relieve stresses. Failure to do so will result in warping (cupping, crooking, bowing, or twisting) during machining and will cause difficulty in boring. The conditioning treatment should be the final step in kiln drying after reaching the target MC and completing the equalizing treatment. Time required for conditioning can vary from 4 to 72 hours, depending on thickness of lumber, density of species, the speed with which the proper depression can be achieved, and the amount of stress relief required. In general, more effective stress relief can be achieved in less time with thinner boards or lower density species than with thicker boards or more dense species.

Evaluation of stress relief achieved is made by cutting stress sections, sometimes known as the "prong test" (fig. A1). A final analysis for freedom from stress cannot be made until the test prongs have air-dried 16 to 24 hours, but a noticeable turning-out of the transverse test prongs immediately after they are cut often indicates that the transverse stresses have been relieved. Good stress relief is commonly defined as straight or nearly straight prongs after the 16- to 24-hour drying period.

Occasionally, the transverse prong test will show no stress, but the lumber will bow when resawed. The cause of the bowing is longitudinal stress resulting from either longitudinal tension set in the surface zones or longitudinal shrinkage differentials due to reaction wood (tension wood in hardwoods). These stresses are most likely to be unrelieved when conditioning temperature or equilibrium moisture content is too low or when conditioning time is too short. A different kind of stress test can detect longitudinal stress (fig. A2). To be judged stress-free, sawcuts should be visible in every cut with no deflection in the strips either way. If stresses are a problem, conditioning should be at 180 °F or higher. The lumber must have been equalized, and the recording instrument must be in calibration. If longitudinal stresses are still a problem, the wet-bulb setting can be raised 1 °F over the recommended value. Also, the conditioning period can be extended about 4 hours per inch of thickness.

Following are suggested DBT and WBT combinations for several final MC's (table A2). Always operate at the highest temperature at which you can control **both** DBT and WBT dependably. For example, if the final target MC is 7 percent, then use 180 °F DBT and 170 °F WBT, or 170 °F DBT and 159 °F WBT, etc.

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[5] As recommended in Agriculture Handbook 528, *Drying Eastern Hardwood Lumber*. However, Agric. Handb 188, *Dry Kiln Operator's Manual* recommends beginning equalizing when driest sample is 2 percent below final target moisture content.

Table A1—Suggested equalization treatments for hardwoods and softwoods (equalizing at final target MC minus 3 pct MC)

Dry-bulb temperature	Wet-bulb temperatures at final target moisture contents of—				
	6 percent	7 percent	8 percent	9 percent	10 percent
	°F				
130	85	91	96	101	106
140	93	100	105	111	115
150	100	103	115	121	125
160	110	117	125	131	136
170	120	127	134	141	146
180	130	137	145	152	157
190	140	147	156	162	168
	°C				
54.5	29.5	32.5	35.5	38.5	41
60	33	37.5	40.5	43	46
65.5	37.5	39.5	46	49.5	51.5
71	43.5	47	51.5	55	57.5
76.5	48	52.5	56.5	60.5	63.5
82	54.5	58	62.5	66.5	69
87.5	60	64	69	72	75.5

Table A2—Suggested conditioning (stress relief) treatments for hardwoods and softwoods[1] (conditioning at final target MC plus 4 pct MC)

Dry-bulb temperature	Wet-bulb temperatures at final target moisture contents of—				
	6 percent	7 percent	8 percent	9 percent	10 percent
	°F				
140	126	128	130	132	133
150	136	138	140	142	143
160	146	149	151	152	154
170	157	159	161	163	164
180	168	170	171	173	174
190	178	180	182	183	185
200	188	190	193	194	195
	°C				
60	52	53	54.5	55.5	56
65.5	57.5	59	60	61	61.5
71	63.5	65	66	66.5	67.5
76.5	69	70.5	72	72.5	73
82	75.5	76.5	77	78.5	79
87.5	81	82	83	84	85
93	86.5	87.5	89	90	90.5

[1] If exact settings cannot be maintained, then strive to obtain comparable wet-bulb depressions and equilibrium MC.

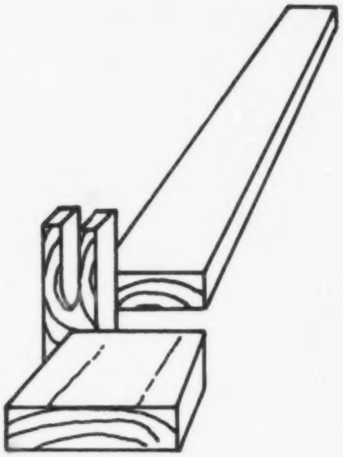

Figure A1—Method of cutting transverse test "prongs." (ML87 5492)

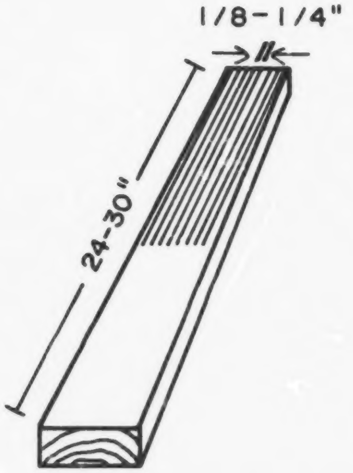

Figure A2—Method of cutting to test for longitudinal stress. Bandsaw cuts approximately every 1/8 to 1/4 inch to about one-half the length of the piece being tested. (ML87 5491)

Appendix B
Sample Board Method

In order to measure the moisture content of lumber during drying, it is impractical to weigh every board in the kiln. Therefore, the sample board method is used to estimate the moisture content of the lumber in the kiln. This method uses short, carefully chosen sample boards sawn from larger pieces of lumber. These sample boards are weighed periodically and their moisture content's (MC) are calculated. Sample boards should be chosen to represent all the lumber in the dryer—the slowest drying and the fastest drying. This means cutting sample boards from lumber that represents the driest and wettest, widest and narrowest boards, flatsawn and quartersawn, thickest and thinnest. For the best job of equalizing and conditioning, it is necessary to have the narrowest, driest lumber represented among the sample boards. Changes in kiln controller settings are based on the average of the wettest one-half or one-third of the samples.

The precise procedures to prepare sample boards are:

1. Select lumber to be used (see above).

2. Cut a 30-inch sample board and then two 1-inch moisture sections from the sample board, avoiding areas near knots and areas closer than 24 inches from the ends of the lumber (fig. B1).

3. Number the sections and the sample board

4. Immediately weigh the sections (accuracy of about 0.1 gram required). It is important that the sections not lose weight after cutting and before weighing. Record weight on the sections with a marker pen.

5. End coat the sample board to prevent moisture loss through ends.

6. Weigh the sample board (accuracy of about 0.1 pound required) and record the weight on the board.

7. Place the sample board in the lumber stack in a location where it will dry at the same rate as the rest of the lumber in the dryer.

8. Place the sections in an oven at 215 °F.

9. After the sections are dry (no further weight loss is noted)—usually 18 to 36 hours, depending on the oven—reweigh and obtain the ovendry (OD) weight.

10. Calculate the MC of each section separately and then average the MC of the two sections to obtain the calculated MC of the sample board when it was cut (step 2). Use the formula

$$\text{pct MC} = \left(\frac{\text{wet weight, step 4}}{\text{OD weight, step 9}} - 1\right) \times 100$$

11. Calculate the OD weight of the sample board using the average MC from step 10 and weight from step 5:

$$\text{calculated OD weight} = \frac{(\text{wet weight, step 5})}{100 + (\text{pct MC, step 10})} \times 100$$

12. Write the calculated OD weight on the sample board (when it is weighed the next time) so that this number is readily available.

13. Periodically reweigh the sample board to obtain a new, current MC:

$$\text{current pct MC} = \left(\frac{\text{current weight, step 13}}{\text{calculated OD weight, step 11}} - 1\right) \times 100$$

14. Occasionally it is necessary to cut new sample boards when the lumber is about 20 percent MC to obtain more accurate MC values (that is, to make a midcourse correction). To do this, cut one new moisture section 6 inches from the end of the sample board. Then follow steps 3 through 13, but use only one section. The "wet weights" in steps 10 and 11 are the weights determined after the sample and new section are sawn.

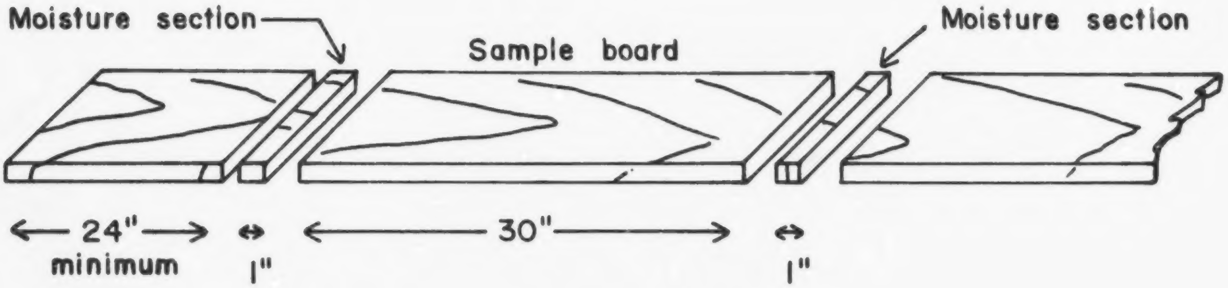

Figure B1—Method of cutting sample board and moisture sections. (ML87 5493)

Appendix C
Common Trade and Botanical Names for Woods NATIVE to the United States and Canada[6,7]

This listing of both common and botanical names provides a quick reference of names to enter the Index of Schedules for the U.S. and Canadian woods. The Index of Schedules is arranged alphabetically by common name first, and this listing provides a ready means to go from botanical name (perhaps more familiar to the forester or botanist) or lumber trade name (perhaps more familiar to the lumber buyer or kiln operator) to the common name used in the Index of Schedules. It should serve as a guide of where to look for kiln schedules in the Index of Schedules. For example: In the listing, a note in parentheses after pine, loblolly, directs you to look under pine, southern, in the schedule index; likewise, the note after elm, red, directs you to look under elm, slippery, in the schedule index; the note after cypress directs you to baldcypress, etc.

Abies amabilis	Fir, Pacific silver
Abies balsamea	Fir, balsam
Abies concolor	Fir, white
Abies grandis	Fir, grand
Abies lasiocarpa	Fir, subalpine
Abies magnifica	Fir, California red
Abies procera	Fir, noble
Acer macrophyllum	Maple, Oregon
Acer negundo	Boxelder
Acer nigrum	Maple, black
Acer rubrum	Maple, red
Acer saccharinum	Maple, silver
Acer saccharum	Maple, sugar
Aesculus glabra	Buckeye, Ohio
Aesculus octandra	Buckeye, yellow
Alder, red	*Alnus rubra*
Alnus rubra	Alder, red
Apple	*Malus spp.*
Arbutus menziesii	Madrone
Ash, black	*Fraxinus nigra*
Ash, blue	*Fraxinus quadrangulata*
Ash, brown (see ash, black in Index)	*Fraxinus nigra*
Ash, green	*Fraxinus pennsylvanica*
Ash, Oregon	*Fraxinus latifolia*
Ash, white	*Fraxinus americana*
Aspen, bigtooth	*Populus grandidentata*
Aspen, quaking	*Populus tremuloides*
Baldcypress	*Taxodium distichum*
Basswood, American	*Tilia americana*
Basswood, white	*Tilia heterophylla*
Beech, American	*Fagus grandifolia*
Betula alleghaniensis	Birch, yellow
Betula lenta	Birch, sweet
Betula nigra	Birch, river
Betula papyrifera	Birch, paper
Betula populifolia	Birch, grey
Birch, grey	*Betula populifolia*

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[6] Following nomenclature of E. L. Little, Jr. 1979. Checklist of United States trees. Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service. 379 p.

[7] For woods from Hawaii, see Appendix D.

Birch, paper	*Betula papyrifera*
Birch, river	*Betula nigra*
Birch, sweet	*Betula lenta*
Birch, yellow	*Betula alleghaniensis*
Blackgum	*Nyssa sylvatica*
Boxelder	*Acer negundo*
Buckeye, Ohio	*Aesculus glabra*
Buckeye, yellow	*Aesculus octandra*
Butternut	*Juglans cinerea*
Calocedrus decurrens	Cedar, incense
Carya aquatica	Hickory, water (see pecan in Index)
Carya cordiformis	Hickory, bitternut (see pecan in index)
Carya glabra	Hickory, pignut
Carya illinoensis	Pecan
Carya laciniosa	Hickory, shellbark
Carya myristicaeformis	Hickory, nutmeg (see pecan in Index)
Carya ovata	Hickory, shagbark
Carya pallida	Hickory, sand
Carya tomentosa	Hickory, mockernut
Castanea dentata	Chestnut
Castanopsis chrysophylla	Chinkapin, giant or golden
Cedar, Alaska yellow	*Chamaecyparis nootkatensis*
Cedar, Atlantic white	*Chamaecyparis thyoides*
Cedar, eastern redcedar	*Juniperus virginiana*
Cedar, incense	*Libocedrus (Calocedrus) decurrens*
Cedar, northern white	*Thuja occidentalis*
Cedar, Port Orford	*Chamaecyparis lawsoniana*
Cedar, western juniper	*Juniperus occidentalis*
Cedar, western redcedar	*Thuja plicata*
Celtis laevigata	Sugarberry
Celtis occidentalis	Hackberry
Chamaecyparis lawsoniana	Cedar, Port Orford
Chamaecyparis nootkatensis	Cedar, Alaska yellow
Chamaecyparis thyoides	Cedar, Atlantic white
Cherry, bitter	*Prunus emarginata*
Cherry, black	*Prunus serotina*
Chestnut	*Castanea dentata*
Chinkapin, giant or golden	*Castanopsis chrysophylla*
Cornus florida	Dogwood, flowering
Cornus nuttallii	Dogwood, Pacific
Cottonwood, balsam poplar	*Populus balsamifera*
Cottonwood, black	*Populus trichocarpa*
Cottonwood, eastern	*Populus deltoides*
Cottonwood, plains	*Populus sargentii*
Cottonwood, swamp	*Populus heterophylla*
Cucumbertree	*Magnolia acuminata*
Cypress (see baldcypress in Index)	*Taxodium distichum*
Diospyros virginiana	Persimmon
Dogwood, flowering	*Cornus florida*
Dogwood, Pacific	*Cornus nuttallii*
Douglas-fir	*Pseudotsuga menziesii*
Elm, American	*Ulmus americana*
Elm, red (see elm, slippery in Index)	*Ulmus rubra*
Elm, rock	*Ulmus thomasii*
Elm, slippery	*Ulmus rubra*
Elm, winged	*Ulmus alata*
Fagus grandifolia	Beech, American
Fir, balsam	*Abies balsamea*

Fir, California red	*Abies magnifica*
Fir, grand	*Abies grandis*
Fir, noble	*Abies procera*
Fir, Pacific silver	*Abies amabilis*
Fir, subalpine	*Abies lasiocarpa*
Fir, white	*Abies concolor*
Fraxinus quadrangulata	Ash, blue
Fraxinus americana	Ash, white
Fraxinus latifolia	Ash, Oregon
Fraxinus nigra	Ash, brown (see ash, black in Index)
Fraxinus nigra	Ash, black
Fraxinus pennsylvanica	Ash, green
Gum, red (see sweetgum in Index)	*Liquidambar styraciflua*
Gum, sap (see sapgum in Index)	*Liquidambar styraciflua*
Hackberry	*Celtis occidentalis*
Hemlock, eastern	*Tsuga canadensis & T. caroliniana*
Hemlock, mountain	*Tsuga mertensiana*
Hemlock, western	*Tsuga mertensiana & T. heterophylla*
Hickory, bitternut (see pecan in Index)	*Carya cordiformis*
Hickory, mockernut	*Carya tomentosa*
Hickory, nutmeg (see pecan in Index)	*Carya myristicaeformis*
Hickory, pignut	*Carya glabra*
Hickory, sand	*Carya pallida*
Hickory, shagbark	*Carya ovata*
Hickory, shellbark	*Carya laciniosa*
Hickory, water (see pecan in Index)	*Carya aquatica*
Holly, American	*Ilex opaca*
Hophornbeam	*Ostrya virginiana*
Ilex opaca	Holly, American
Juglans cinerea	Butternut
Juglans nigra	Walnut, black
Juniperus occidentalis	Cedar, western juniper
Juniperus virginiana	Cedar, eastern redcedar
Larch, alpine	*Larix lyallii*
Larch, western	*Larix occidentalis*
Larix laricina	Tamarack
Larix lyallii	Larch, alpine
Larix occidentalis	Larch, western
Laurel, California	*Umbellularia californica*
Libocedrus decurrens	Cedar, incense
Liquidambar styraciflua	Gum, sap (see sapgum in Index)
Liquidambar styraciflua	Gum, red (see sweetgum in Index)
Liquidambar styraciflua	Sapgum
Liquidambar styraciflua	Sweetgum
Liriodendron tulipifera	Poplar (see yellow-poplar in Index)
Liriodendron tulipifera	Yellow-poplar
Lithocarpus densiflorus	Tanoak
Locust, black	*Robinia pseudoacacia*
Maclura pomifera	Osage-orange
Madrone	*Arbutus menziesii*
Magnolia acuminata	Cucumbertree
Magnolia grandiflora	Magnolia, southern
Magnolia virginiana	Sweetbay (see magnolia, southern, in Index)
Magnolia, southern	*Magnolia grandiflora*
Malus spp.	Apple

Maple, black	*Acer nigrum*
Maple, Oregon	*Acer macrophyllum*
Maple, red	*Acer rubrum*
Maple, silver	*Acer saccharinum*
Maple, sugar	*Acer saccharum*
Myrtle, Oregon	*Umbellularia californica*
Nyssa aquatica	Tupelo, water
Nyssa sylvatica	Blackgum
Nyssa sylvatica	Tupelo, black
Nyssa sylvatica var. biflora	Tupelo, swamp
Oak, black (red oak group)	*Quercus velutina*
Oak, blackjack (red oak group)	*Quercus marilandica*
Oak, blue (white oak group)	*Quercus douglasii*
Oak, bur (white oak group)	*Quercus macrocarpa*
Oak, California black	*Quercus kelloggii*
Oak, canyon live	*Quercus chrysolepis*
Oak, cherrybark (red oak group)	*Quercus falcata var. pagodaefolia*
Oak, chestnut (white oak group)	*Quercus prinus*
Oak, chinkapin (white oak group)	*Quercus muehlenbergii*
Oak, Emory (white oak group)	*Quercus emoryi*
Oak, Gambel (white oak group)	*Quercus gambelii*
Oak, laurel (red oak group)	*Quercus laurifolia*
Oak, live (white oak group)	*Quercus virginiana*
Oak, Mexican blue (white oak group)	*Quercus oblongifolia*
Oak, northern pin (red oak group)	*Quercus ellipsoidalis*
Oak, northern red (red oak group)	*Quercus rubra*
Oak, Nuttall (red oak group)	*Quercus nuttallii*
Oak, Oregon white	*Quercus garryana*
Oak, overcup (white oak group)	*Quercus lyrata*
Oak, pin (red oak group)	*Quercus palustris*
Oak, post (white oak group)	*Quercus stellata*
Oak, scarlet (red oak group)	*Quercus coccinea*
Oak, Schumard (red oak group)	*Quercus shumardii*
Oak, southern red (red oak group)	*Quercus falcata*
Oak, swamp chestnut (white oak group)	*Quercus michauxii*
Oak, swamp white (white oak group)	*Quercus bicolor*
Oak, turkey (red oak group)	*Quercus laevis*
Oak, water (red oak group)	*Quercus nigra*
Oak, white (white oak group)	*Quercus alba*
Oak, willow (red oak group)	*Quercus phellos*
Osage-orange	*Maclura pomifera*
Ostrya virginiana	Hophornbeam
Pecan	*Carya illinoensis*
Persimmon	*Diospyros virginiana*
Picea engelmannii	Spruce, Engelmann
Picea glauca	Spruce, white
Picea mariana	Spruce, black
Picea rubens	Spruce, red
Picea sitchensis	Spruce, Sitka
Pine, eastern white	*Pinus strobus*
Pine, jack	*Pinus banksiana*
Pine, Jeffrey	*Pinus jeffreyi*
Pine, limber	*Pinus flexilis*
Pine, loblolly (see pine, southern in Index)	*Pinus taeda*
Pine, lodgepole	*Pinus contorta*
Pine, longleaf (see pine, southern in Index)	*Pinus palustris*
Pine, ponderosa	*Pinus ponderosa*
Pine, red	*Pinus resinosa*

Pine, shortleaf (see pine, southern in Index)	*Pinus echinata*
Pine, slash (see pine, southern in Index)	*Pinus elliottii*
Pine, sugar	*Pinus lambertiana*
Pine, western white	*Pinus monticola*
Pinus banksiana	Pine, jack
Pinus contorta	Pine, lodgepole
Pinus echinata	Pine, shortleaf (see pine, southern in index)
Pinus elliottii	Pine, slash (see pine, southern in Index)
Pinus flexilis	Pine, limber
Pinus jeffreyi	Pine, Jeffrey
Pinus lambertiana	Pine, sugar
Pinus monticola	Pine, western white
Pinus palustris	Pine, longleaf (see pine, southern in index)
Pinus ponderosa	Pine, ponderosa
Pinus resinosa	Pine, red
Pinus strobus	Pine, eastern white
Pinus taeda	Pine, loblolly (see pine, southern in Index)
Platanus occidentalis	Sycamore
Poplar (see yellow-poplar in Index)	*Liriodendron tulipifera*
Popple (see aspen in Index)	*Populus spp.*
Populus balsamifera	Cottonwood, balsam poplar
Populus deltoides	Cottonwood, eastern
Populus grandidentata	Aspen, bigtooth
Populus heterophylla	Cottonwood, swamp
Populus sargentii	Cottonwood, plains
Populus spp.	Popple (see aspen in Index)
Populus tremuloides	Aspen, quaking
Populus trichocarpa	Cottonwood, black
Prunus emarginata	Cherry, bitter
Prunus serotina	Cherry, black
Pseudotsuga menziesii	Douglas-fir

Quercus alba	Oak, white (white oak group)
Quercus bicolor	Oak, swamp white (white oak group)
Quercus chrysolepis	Oak, canyon live
Quercus coccinea	Oak, scarlet (red oak group)
Quercus douglasii	Oak, blue (white oak group)
Quercus ellipsoidalis	Oak, northern pin (red oak group)
Quercus emoryi	Oak, Emory (white oak group)
Quercus falcata	Oak, southern red (red oak group)
Quercus falcata var. pagodaefolia	Oak, cherrybark (red oak group)
Quercus gambelii	Oak, Gambel (white oak group)
Quercus garryana	Oak, Oregon white
Quercus kelloggii	Oak, California black
Quercus laevis	Oak, turkey (red oak group)
Quercus laurifolia	Oak, laurel (red oak group)
Quercus lyrata	Oak, overcup (white oak group)
Quercus macrocarpa	Oak, bur (white oak group)
Quercus marilandica	Oak, blackjack (red oak group)
Quercus michauxii	Oak, swamp chestnut (white oak group)
Quercus muehlenbergii	Oak, chinkapin (white oak group)
Quercus nigra	Oak, water (red oak group)
Quercus nuttallii	Oak, Nuttall (red oak group)
Quercus oblongifolia	Oak, Mexican blue (white oak group)
Quercus palustris	Oak, pin (red oak group)
Quercus phellos	Oak, willow (red oak group)
Quercus prinus	Oak, chestnut (white oak group)
Quercus rubra	Oak, northern red (red oak group)
Quercus shumardii	Oak, Schumard (red oak group)
Quercus stellata	Oak, post (white oak group)
Quercus velutina	Oak, black (red oak group)

Quercus virginiana	Oak, live (white oak group)
Redwood	*Sequoia sempervirens*
Robinia pseudoacacia	Locust, black
Salix nigra	Willow, black
Sapgum	*Liquidambar styraciflua*
Sassafras albidum	Sassafras
Sassafras	*Sassafras albidum*
Sequoia sempervirens	Redwood
Spruce, black	*Picea mariana*
Spruce, Engelmann	*Picea engelmannii*
Spruce, red	*Picea rubens*
Spruce, Sitka	*Picea sitchensis*
Spruce, white	*Picea glauca*
Sugarberry (see hackberry in Index)	*Celtis laevigata*
Sweetbay (see magnolia, southern in Index)	*Magnolia virginiana*
Sweetgum	*Liquidambar styraciflua*
Sycamore	*Platanus occidentalis*
Tamarack	*Larix laricina*
Tanoak	*Lithocarpus densiflorus*
Taxodium distichum	Baldcypress
Taxodium distichum	Cypress (see baldcypress in Index)
Taxus brevifolia	Yew, Pacific
Thuja occidentalis	Cedar, northern white
Thuja plicata	Cedar, western redcedar
Tilia americana	Basswood, American
Tilia heterophylla	Basswood, white
Tsuga canadensis & T. caroliniana	Hemlock, eastern
Tsuga mertensiana & T. heterophylla	Hemlock, western
Tsuga mertensiana	Hemlock, mountain
Tupelo, black	*Nyssa sylvatica*
Tupelo, swamp	*Nyssa sylvatica var. biflora*
Tupelo, water	*Nyssa aquatica*
Ulmus alata	Elm, winged
Ulmus americana	Elm, American
Ulmus rubra	Elm, red (see elm, slippery in Index)
Ulmus rubra	Elm, slippery
Ulmus thomasii	Elm, rock
Umbellularia californica	Laurel, California
Umbellularia californica	Myrtle, Oregon
Walnut, black	*Juglans nigra*
Willow, black	*Salix nigra*
Yellow-poplar	*Liriodendron tulipifera*
Yew, Pacific	*Taxus brevifolia*

Appendix D
Common Trade and Botanical Names for Woods NOT NATIVE to the United States and Canada

If only the trade name of a wood is known, this listing can be used to locate the species. The trade names are listed alphabetically, along with their botanical name and geographical region of origin. Preference is given to English trade names (e.g., mahogany rather than caoba, mogno, or acajou). After locating the botanical name and the geographical region of origin, turn to that geographical section of the schedule index, and find the species, note the table number for the kiln schedule needed, then turn to that table to find the kiln schedule.

Trade name	Region of origin[1]	Botanical name
Abachi	AF	*Triplochiton scleroxylon*
Abale	AF	*Combretodendron macrocarpum*
Abel	AF	*Canarium schweinfurthii*
Abeto	AM	*Abies religiosa*
Aboudikro	AF	*Entandrophragma cylindricum*
Abura	AF	*Mitragyna ciliata*
Acalocote	AM	*Pinus strobus var. chapenis*
Acapu	AM	*Vouacapoua americana*
Acapúrana	AM	*Andira* spp.
Afara	AF	*Terminalia superba*
Afara, black	AF	*Terminalia ivorensis*
African blackwood	AF	*Dalbergia melanoxylon*
African canarium	AF	*Canarium schweinfurthii*
African celtis	AF	*Celtis* spp.
African ebony	AF	*Diospyros* spp.
African mahogany	AF	*Khaya ivorensis* and *K. anthotheca*
African mahogany	AF	*Khaya grandifoliola* and *K. senegalensis*
African padauk	AF	*Pterocarpus soyauxii*
African pencil cedar	AF	*Juniperus procera*
African-walnut	AF	*Lovoa trichilioides*
Afrormosia	AF	*Pericopsis elata*, SYN. *Afrormosia elata*
Afzelia	AF	*Afzelia* spp.
Agathis	AS	*Agathis* spp.
Agba	AF	*Gossweilerodendron balsamiferum*
Agboin	AF	*Piptadeniastrum africanum*
Ahuehuete	AM	*Taxodium mucronatum*
Aiele	AF	*Canarium schweinfurthii*
Aile	AM	*Alnus arguta*
Ailite	AM	*Alnus arguta*
Akagashi	AS	*Cyclobalanopsis acuta*
Akamatsu	AS	*Pinus densiflora*
Ako	AF	*Antiaris* spp.
Akom	AF	*Terminalia superba*
Akomu	AF	*Pycnanthus angolensis*
Alan	AS	*Shorea* spp. (dark red meranti—red lauan group)
Albarco	AM	*Cariniana* spp. and *C. pyriformis*
Albizzia	AF	*Albizia* spp.
Alcornoque	AM	*Bowdichia* spp.
Alder, European	EU	*Alnus glutinosa*
Algarrobo	AM	*Hymenaea courbaril*
Aligna	AF	*Afzelia* spp.
Almon	AS	*Shorea* spp. (light red meranti—light red lauan group)

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Alone	AF	*Bombax* spp.
Alstonia	AS	*Alstonia* spp.
Alstonia	AF	*Alstonia congensis* and *A. boonei*
Amaranth	AM	*Peltogyne* spp.
Amberoy	AS	*Pterocymbium beccarii*
Amerello	AM	*Aspidosperma* spp. (peroba group)
American muskwood	AM	*Guarea* spp.
Amugis	AS	*Koordersiondendron pinnatum*
Andaman padauk	AS	*Pterocarpus dalbergioides*
Andiroba	AM	*Carapa guianensis*
Anegre	AF	*Aningeria* spp.
Angelique	AM	*Dicorynia guianensis*
Angico prieto	AM	*Anadenanthera macrocarpa*
Angouma	AF	*Aucoumea klaineana*
Aningeria	AF	*Aningeria* spp.
Antiaris	AF	*Antiaris* spp.
Apa	AF	*Afzelia* spp.
Apitong	AS	*Dipterocarpus* spp.
Apple, European	EU	*Malus sylvestris*
Aprono	AF	*Mansonia altissima*
Araracanga	AM	*Aspidosperma* spp. (araracanga group)
Arariba	AM	*Centrolobium* spp.
Arere	AF	*Triplochiton scleroxylon*
Ako	AF	*Antiaris* spp.
Asada	AS	*Ostrya japonica*
Ash, European	EU	*Fraxinus* spp.
Aspen, European	EU	*Populus tremula*
Australian blackwood	AS	*Acacia melanoxylon*
Australian-maple	AS	*Flindersia* spp.
Australian red-cedar	AS	*Cedrela* spp.
Avodiré	AF	*Turreanthus africanus*
Ayacahuite	AM	*Pinus ayacahuite*
Ayan	AF	*Distemonanthus betchamianus*
Ayous	AF	*Triplochiton scleroxylon*
Azobé	AF	*Lophira alata*
Bagras	AS	*Eucalyptus deglupta*
Baboen	AM	*Virola* spp.
Badi	AF	*Nauclea diderrichii*
Bagtikan	AS	*Parashorea* spp.
Bahia	AF	*Mitragyna ciliata*
Baku	AF	*Tieghemella heckelii* and *T. africana*
Balata	AM	*Manilkara bidentata*
Balau	AS	*Shorea* spp. (balau group)
Balsa	AM	*Ochroma pyramidale*, SYN. *O. lagopus*
Banak	AM	*Virola* spp.
Banga wanga	AF	*Amblygonocarpus andongensis*
Bannia	AM	*Swartzia* spp.
Baromalli	AM	*Catostema* spp.
Basong	AS	*Alstonia* spp.
Basralocus	AM	*Dicorynia guianensis*
Batai	AS	*Albizia falcataria*, SYN. *A. falcata*
Beech, European	EU	*Fagus sylvatica*
Beech, Japanese	AS	*Fagus crenata*
Beech, Myrtle-	AS	*Nothofagus* spp.
Beefwood	AM	*Manilkara bidentata*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Belian	AS	*Eusideroxylon zwageri*
Benge	AF	*Guibourtia arnoldiana*
Benin mahogany	AF	*Khaya grandifoliola* and *K. senegalensis*
Berlinia	AF	*Berlinia* spp.
Bete	AF	*Mansonia altissima*
Bethabara	AM	*Tabebuia* spp. (*lapacho* group)
Bilinga	AF	*Nauclea diderrichii*
Binuang	AS	*Octomeles sumatrana*
Bintangor	AS	*Calophyllum* spp.
Binukau	AS	*Garcinia* spp.
Birch, European	EU	*Betula pubescens* and *B. verrucosa*
Bitanghol	AS	*Calophyllum* spp.
Black afara	AF	*Terminalia ivorensis*
Black bean	AS	*Castanospermum australe*
Black cabbage-bark	AM	*Lonchocarpus* spp.
Black wattle	AS	*Acacia mollissima*, SYN. *A. mearnsii*
Blackbutt	AS	*Eucalyptus pilularis*
Blackwood, African	AF	*Dalbergia melanoxylon*
Blackwood, Australian	AS	*Acacia melanoxylon*
Bluegum	AS	*Eucalyptus globulus*
Bocote	AM	*Cordia* spp. (hard-wooded, dark-colored gerascanthus group)
Bombay, white	AS	*Terminalia procera*
Bombax	AF	*Bombax* spp.
Bongele	AF	*Sterculia oblonga*
Borneo ironwood	AS	*Eusideroxylon zwageri*
Bosse	AF	*Guarea cedrata* and *G. thompsonii*
Box, Cape	EU	*Buxus macowani*
Box, East London	EU	*Buxus macowani*
Box, European	EU	*Buxus sempervirens*
Boxwood, Maracaibo	AM	*Gossypiospermum praecox*
Boxwood, San Domingo	AM	*Phyllostylon brasiliensis*
Boxwood, West Indian	AM	*Gossypiospermum praecox*
Brazilian walnut	AM	*Phoebe porosa*
Brush box	AS	*Tristania* spp.
Bubinga	AF	*Guibourtia* spp.
Bulletwood	AM	*Manilkara bidentata*
Buna	AS	*Fagus crenata*
Burada	AM	*Parinari* spp.
Burkea	AF	*Burkea africana*
Burma padauk	AS	*Pterocarpus macrocarpus*
Burma lacewood	AS	*Homalium* spp.
Camphor wood	AS	*Cinnamomum* spp.
Camphorwood, East African	AF	*Ocotea usambarensis*
Campnosperma	AS	*Campnosperma brevipetiolata*
Canalete	AM	*Cordia* spp. (hard-wooded, dark-colored gerascanthus group)
Canarium, African	AF	*Canarium schweinfurthii*
Canary wood	AM	*Centrolobium* spp.
Candelo	AM	*Byrsonima coriacea* var *spicata* and *Byrsonima spp.*
Caoba	AM	*Swietenia macrophylla*
Capote	AM	*Sterculia pruriens*
Caracoli	AM	*Anacardium excelsum*
Carapa	AM	*Carapa guianensis*
Casuarina	AS	*Casuarina* spp.
Cativo	AM	*Prioria copaifera*
Cebil	AM	*Anadenanthera macrocarpa*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU)

Trade name	Region of origin[1]	Botanical name
Cedar, African pencil	AF	*Juniperus procera*
Cedar, Spanish-	AM	*Cedrela* spp.
Cedro	AM	*Cedrela* spp.
Cedro bianco	AM	*Cupressus benthani* and *C. lindleyi*
Cedro macho	AM	*Carapa guianensis*
Ceiba	AF	*Ceiba pentandra*
Ceiba	AM	*Ceiba pentandra*
Celtis, African	AF	*Celtis* spp.
Celtis, Asian	AS	*Celtis* spp.
Chanfuta	AF	*Afzelia* spp.
Changugo	AM	*Byrsonima coriacea* var *spicata* and *Byrsonima spp.*
Cheesewood, white	AS	*Alstonia* spp.
Chenchen	AF	*Antiaris* spp.
Chengal	AS	*Balanocarpus* spp.
Cherry, European	EU	*Prunus avium*
Chestnut, European sweet	EU	*Castanea sativa*
Chewstick	AM	*Symphonia globulifera*
Chhoeuteal bangkuoi	AS	*Dipterocarpus insularis*
Chicha brava	AM	*Sterculia pruriens*
Chickrassy	AS	*Chukrasia tabularis*
Chilean-pine	AM	*Araucaria araucana*
Chuglam, white	AS	*Terminalia bialata*
Chumprak	AS	*Heritiera* spp., SYN. *Tarrietia* spp.
Cinnamon wood	AS	*Cinnamomum* spp.
Cipres	AM	*Cupressus lindleyi*
Coachwood	AS	*Ceratopetalum apetalum*
Cocobolo	AM	*Dalbergia retusa*
Coconut	AS	*Cocos nucifera*
Cocuswood	AM	*Brya ebenus*
Coffeewood	AM	*Caesalpinia* spp., SYN. *Libidiba* spp.
Coigue	AM	*Nothofagus dombeyi*
Congowood	AF	*Lovoa trichilioides*
Copachi	AM	*Aspidosperma* spp. (araracanga group)
Copal	AM	*Protium* spp.
Cordia, West African	AF	*Cordia millenii* and *C. platythyrsa*
Courbaril	AM	*Hymenaea courbaril*
Cow-tree	AM	*Brosimum* spp. (utile group)
Crabwood	AM	*Carapa guianensis*
Cramantee	AM	*Guarea* spp.
Cuangare	AM	*Dialyanthera* spp.
Curupay	AM	*Anadenanthera macrocarpa*, SYN. *Piptadenia macrocarpa*
Cypress, Mexican	AM	*Cupressus lusitanica*
Dabema	AF	*Piptadeniastrum africanum*
Dahoma	AF	*Piptadeniastrum africanum*
Dakua	AS	*Agathis* spp.
Daniellia	AF	*Daniellia ogea* and *D. thurifera*
Danta	AF	*Nesogordonia papaverifera*
Darah darah	AS	*Myristica* spp. and *Knema* spp.
Dark red meranti	AS	*Shorea* spp. (dark red meranti—red lauan group)
Dark red seraya	AS	*Shorea* spp. (dark red meranti—red lauan group)
Dau	AS	*Dipterocarpus* spp.
Deal	EU	*Pinus sylvestris*
Deal, big	AM	*Dealea gigantea*
Deal, red	EU	*Pinus sylvestris*
Deal, white	EU	*Picea abies*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Degame	AM	*Calycophyllum candidissimum*
Deglupta	AS	*Eucalyptus deglupta*
Demerara greenheart	AM	*Ocotea rodiaei*
Determa	AM	*Ocotea rubra*
Dhup	AS	*Canarium euphyllum*
Dillenia	AS	*Dillenia* spp.
Douka	AF	*Tieghemella heckelii* and *T. africana*
Doum	AF	*Ceiba pentandra*
Doussie	AF	*Afzelia* spp.
Dita	AS	*Alstonia* spp.
East African camphorwood	AF	*Ocotea usambarensis*
East African olive	AF	*Olea hochstetteri*
East African satinwood	AF	*Fagara macrophylla*
East Indian ebony	AS	*Diospyros* spp.
East Indian satinwood	AS	*Chloroxylon swietenia*
Ebiara	AF	*Berlinia* spp.
Ebony, African	AF	*Diospyros* spp.
Ebony, East Indian	AS	*Diospyros* spp.
Effeu	AF	*Hannoa klaineana*
Ekhimi	AF	*Piptadeniastrum africanum*
Ekki	AF	*Lophira alata*
Ekpogoi	AF	*Berlinia* spp.
Elemi	AF	*Canarium schweinfurthii*
Elm, Dutch	EU	*Ulmus hollandica*
Elm, European	EU	*Ulmus procera*
Elm, wych	EU	*Ulmus glabra*
Emeri	AF	*Terminalia ivorensis*
Encino	AM	*Quercus* spp.
Eng	AS	*Dipterocarpus* spp.
Entuyut	AS	*Tetramerista glabra*
Envireira	AM	*Sterculia pruriens*
Epro	AF	*Nesogordonia papaverifera*
Erima	AS	*Octomeles sumatrana*
Erimado	AF	*Ricinodendron heudelotii*, SYN. *R. rautanenii*
Esa	AF	*Celtis* spp.
Espave	AM	*Anacardium excelsum*
Essia	AF	*Combretodendron macrocarpum*, SYN. *C. africanum*
Eyong	AF	*Sterculia oblonga*
Faro	AF	*Daniellia ogea* and *D. thurifera*
Fernan sanchez	AM	*Triplaris guayaquilensis*
Figueroa	AM	*Carapa guianensis*
Fir, European silver	EU	*Abies alba*
Foengoe	AM	*Parinari* spp.
Fotie	AF	*Hannoa klaineana*
Frake	AF	*Terminalia superba*
Framire	AF	*Terminalia ivorensis*
Freijo	AM	*Cordia* spp. (soft-wooded light-colored alliodora group)
Fromager	AF	*Ceiba pentandra*
Fuma	AF	*Ceiba pentandra*
Gaboon	AF	*Aucoumea klaineana*
Gagil	AS	*Hopea* spp.
Gedu nohor	AF	*Entandrophragma angolense*
Geronggang	AS	*Cratoxylon arborescens*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Glassy wood	AM	*Guettarda* spp.
Gmelina	AS	*Gmelina arborea*
Goncalo alves	AM	*Astronium graveolens*
Granadillo	AM	*Dalbergia retusa*
Greenheart, demerara	AM	*Ocotea rodiaei*
Grenadilla	AF	*Dalbergia melanoxylon*
Grevillea	AS	*Grevillea robusta*
Grignon fou	AM	*Qualea* spp.
Gronfoeloe	AM	*Qualea* spp.
Guanacaste	AM	*Enterolobium cyclocarpum*
Guarea	AF	*Guarea cedrata* and *G. thompsonii*
Guarita	AM	*Astronium graveolens*
Guatambú	AM	*Balfourodendron riedelianum*
Guayacan	AM	*Guaiacum* spp.
Gubas	AS	*Endospermum* spp.
Gumhar	AS	*Gmelina arborea*
Gurjun	AS	*Dipterocarpus* spp.
Gusanero	AM	*Astronium graveolens*
Haiari	AM	*Alexa imperatricis*
Haiariballi	AM	*Alexa imperatricis*
Haldu	AS	*Adina cordifolia*
Hinoki	AS	*Chamaecyparis obtusa*
Holly, European	EU	*Ilex aquifolium*
Hoop-pine	AS	*Araucaria* spp.
Hornbeam, European	EU	*Carpinus betulus*
Horse-chestnut, European	EU	*Aesculus hippocastanum*
Huon-pine	AS	*Dacrydium franklinii*
Hura	AM	*Hura crepitans*
Huynh	AS	*Heritiera* spp.
Idigbo	AF	*Terminalia ivorensis*
Ilimo	AS	*Octomeles sumatrana*
Ilomba	AF	*Pycnanthus angolensis*
Imbuia	AM	*Phoebe porosa*
Impas	AS	*Koompassia malaccensis*
Incenso	AF	*Daniellia ogea* and *D. thurifera*
Indian laurel	AS	*Terminalia tomentosa*
Indian rosewood	AS	*Dalbergia latifolia*
Ipe	AM	*Tabebuia* spp. (lapacho group)
Ipil	AS	*Intsia bijuga* and *I. palembanica*
Iroko	AF	*Chlorophora excelsa* and *C. regia*
Ironbark	AS	*Eucalyptus* spp.
Ironwood, Borneo	AS	*Eusideroxylon zwageri*
Itayakaede	AS	*Acer mono*
Jabillo	AM	*Hura crepitans*
Jaboty	AM	*Erisma uncinatum*
Jacamin	AM	*Aspidosperma* spp. (araracanga group)
Jacarandá	AM	*Dalbergia nigra*
Jacareuba	AM	*Calophyllum brasiliense*
Jarrah	AS	*Eucalyptus marginata*
Jelutong	AS	*Dyera costulata*
Jequitiba	AM	*Cariniana pyriformis* and *Cariniana* spp.
Jongkong	AS	*Dactylocladus stenostachys*

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Kabukalli	AM	*Goupia glabra*
Kadam	AS	*Anthocephalus chinensis*, SYN. *A. cadamba*
Kalempayan	AS	*Anthocephalus chinensis*
Kamagong	AS	*Diospyros* spp.
Kamassi	AF	*Gonioma kamassi*
Kambala	AF	*Chlorophora excelsa* and *C. regia*
Kamerere	AS	*Eucalyptus deglupta*
Kandis	AS	*Garcinia* spp.
Kapoer	AS	*Dryobalanops* spp.
Kapok-tree	AM	*Ceiba pentandra*
Kapur	AS	*Dryobalanops* spp.
Karamatsu	AS	*Larix leptolepis*
Karri	AS	*Eucalyptus diversicolor*
Katmon	AS	*Dillenia* spp.
Katon	AS	*Sandoricum indicum*
Katong	AS	*Cynometra* spp.
Kauri	AS	*Agathis* spp.
Kauvula	AS	*Endospermum* spp.
Kayu malam	AS	*Diospyros* spp.
Kedondong	AS	*Canarium* spp.
Kekatong	AS	*Cynometra* spp.
Keladan	AS	*Dryobalanops* spp.
Keledang	AS	*Artocarpus* spp.
Kelobra	AM	*Enterolobium cyclocarpum*
Kembang	AS	*Heritiera* spp.
Kempas	AS	*Koompassia malaccensis*
Keranji	AS	*Dialium* spp.
Keruing	AS	*Dipterocarpus* spp.
Kevazingo	AF	*Guibourtia* spp.
Khleng	AS	*Dialium* spp.
Kiri	AS	*Paulownia tomentosa*
Kirundo	AF	*Antiaris* spp.
Klinki-pine	AS	*Araucaria* spp.
Koa	AS	*Acacia koa*
Kobakoba	AF	*Baikiaea insignis*
Kokko	AS	*Albizia lebbek*
Kokrodua	AF	*Pericopsis elata*
Kopie	AM	*Goupia glabra*
"Korina"	AF	*Terminalia superba*
Kosipo	AF	*Entandrophragma candollei*
Kotibe	AF	*Nesogordonia papaverifera*
Koto	AF	*Pterygota* spp.
Krabak	AS	*Anisoptera* spp.
Kraham	AS	*Dacrydium elatum*
Krapa	AM	*Carapa guianensis*
Kurokai	AM	*Protium* spp.
Kusia	AF	*Nauclea diderrichii*
Kusiaba	AF	*Nauclea diderrichii*
Kwao	AS	*Adina cordifolia*
Kwari	AM	*Vochysia* spp.
Kyenkyen	AF	*Antiaris* spp.
Lacewood	AS	*Grevillea robusta*
Lacewood, Burma	AS	*Homalium* spp.
Lamog	AS	*Planchania* spp.
Lampati	AS	*Duabanga* spp.

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Landa	AF	*Erythroxylum manii*
Landosan	AF	*Aningeria* spp.
Lapacho	AM	*Tabebuia* spp. (lapacho group)
Laran	AS	*Anthocephalus chinensis*
Larch, European	EU	*Larix decidua*
Larch, Japanese	AS	*Larix leptolepis*
Larch, Siberian	EU	*Larix russica*
Lauan, light red	AS	*Shorea* spp. (light red meranti—light red lauan group)
Lauan, red	AS	*Shorea* spp. (dark red meranti—red lauan group)
Lauan, white	AS	*Pentacme contorta*
Laurel blanco	AM	*Cordia* spp. (soft-wooded light-colored alliodora group)
Laurel, Chilean	AM	*Laurelia aromatica*
Laurel, Indian	AS	*Terminalia tomentosa* complex
Lemonwood	AM	*Calycophyllum candidissimum*
Light red lauan	AS	*Shorea* spp. (light red meranti—light red lauan group)
Light red meranti	AS	*Shorea* spp. (light red meranti—light red lauan group)
Lignumvitae	AM	*Guaiacum* spp.
Limba	AF	*Terminalia superba*
Lime, European	EU	*Tilia vulgaris*
Litsea	AS	*Litsea sp.*
Loktob	AS	*Duabanga* spp.
Loliondo	AF	*Olea welwitschii*
Long john	AM	*Triplaris* spp.
Longui	AF	*Gambeya africana*, SYN. *Chrysophyllum africanum*
Louro pardo	AM	*Cordia* spp. (hard-wooded dark-colored gerascanthus group)
Louro vermelho	AM	*Ocotea rubra*
Lovoa	AF	*Lovoa trichilioides*
Lumbayau	AS	*Heritiera* spp.
Maccarati	AF	*Burkea africana*
Mafu	AF	*Fagaropsis angolensis*
Magas	AS	*Duabanga* spp.
Maho	AM	*Sterculia pruriens*
Mahogany, African	AF	*Khaya grandifoliola* and *K. senegalensis*
Mahogany, African	AF	*Khaya ivorensis* and *K. anthotheca*
Mahogany, Benin	AF	*Khaya grandifoliola* and *K. senegalensis*
Mahogany, Honduras	AM	*Swietenia macrophylla*
Mahogany, Senegal	AF	*Khaya grandifoliola* and *K. senegalensis*
Mahogany, West Indies	AM	*Swietenia mahagoni*
Mai pradoo	AS	*Pterocarpus macrocarpus*
Makanba	AS	*Betula maximowicziana*
Makoré	AF	*Tieghemella heckelii* and *T. africana*
Malas	AS	*Homalium foetidum*
Mandioqueira	AM	*Qualea* spp.
Manio	AM	*Podocarpus* spp.
Manni	AM	*Symphonia globulifera*
Mansonia	AF	*Mansonia altissima*
Maple, Australian-	AS	*Flindersia* spp.
Maple, Norway	EU	*Acer platanoides*
Maranggo	AS	*Azadirachta* spp.
Mayapis	AS	*Shorea* spp. (light-red meranti—light red lauan group)
Mayflower	AM	*Tabebuia* spp. (roble group)
Mbamakofi	AF	*Afzelia* spp.
Mbarika	AF	*Isoberlinia scheffleri*
Mbenge	AF	*Guibourtia arnoldiana*
Mchenge	AF	*Isoberlinia globifora*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Mecrusse	AF	*Androstachys johnsonii*
Melawis	AS	*Gonystylus* spp.
Melunak	AS	*Pentace* spp.
Mendou	AF	*Brachystegia* spp.
Menggeris	AS	*Koompassia excelsa*
Mengkulang	AS	*Heritiera* spp., SYN. *Tarriotia* spp.
Meranti, dark red	AS	*Shorea* spp. (dark red meranti—red lauan group)
Meranti, light red	AS	*Shorea* spp. (light red meranti—light red lauan group)
Meranti, yellow	AS	*Shorea* spp. (yellow meranti group)
Meranti, white	AS	*Shorea* spp. (white meranti group)
Merawan	AS	*Hopea* spp.
Merbau	AS	*Intsia bijuga* and *I. palembanica*
Mergalang	AS	*Alstonia* spp.
Mersawa	AS	*Anisoptera costata* and *A. thurifera*
Meru-oak	AF	*Vitex doniana*
Messassa	AF	*Brachystegia spiciformis*
Mexican cypress	AM	*Cupressus lusitanica*
Mfume	AF	*Bombax* spp.
Mierenhout	AM	*Triplaris* spp.
Milky-pine	AS	*Alstonia* spp.
Missanda	AF	*Erythrophleum ivorense* and *E. guineense*
Mizume	AS	*Betula grossa*
Mizunara	AS	*Quercus magnolica* var. *grosseserrata*
Mjombo	AF	*Brachystegia boehmii*
Mkora	AF	*Afzelia* spp.
Mkuka	AF	*Ficalhoa laurifolia*
Molucca albizzia	AS	*Albizia falcateria*, SYN. *A. falcata*
Moca	AM	*Andira* spp.
Momi	AS	*Abies firma*
Mora	AM	*Mora excelsa* and *M. gonggrijpii*
Morabukea	AM	*Mora excelsa* and *M. gonggrijpii*
Morado	AM	*Peltogyne* spp.
Movingui	AF	*Distemonanthus benthamianus*
Mtambara	AF	*Cephalosphaera usambarensis*
Mtundu	AF	*Brachystegia spiciformis*
Mubura	AF	*Parinari excelsa*
Muchenche	AF	*Newtonia buchananii*
Mueri	AF	*Pygeum africanum*, SYN. *Prunus africanum*
Mugongo	AF	*Ricinodendron rautanenii*
Mugonyone	AF	*Apodytes dimidiata*
Mugwi	AF	*Bosquiea phoberos*
Muhimbi	AF	*Cynometra alexandri*
Muhugive	AF	*Brachylaena hutchinsii*
Muhuhu	AF	*Brachylaena hutchinsii*
Muirungi	AF	*Casearia battiscombei*
Mukangu	AF	*Aningeria* spp.
Mumuli	AF	*Holoptelea grandis*
Muninga	AF	*Pterocarpus angolensis*
Musine	AF	*Croton megalocarpus*
Musizi	AF	*Maesopsis eminii*
Mussacossa	AF	*Afzelia* spp.
Mutenye	AF	*Guibourtia arnoldiana*
Mwafu	AF	*Canarium schweinfurthii*
Myiuga	AS	*Cynometra* spp.
Myrtle-beech	AS	*Nothofagus* spp.
Myrtle, Tasmanian-	AS	*Nothofagus* spp.

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Narek	AS	*Balanocarpus* spp.
Nargusta	AM	*Terminalia amazonia*
Nato	AS	*Palaquium* spp. and *Payena* spp.
Neem	AS	*Azadirachta* spp.
Niangon	AF	*Tarrietia utilis* and *T. densiflora*
Nkobakoba	AF	*Baikiaea insignis* subsp. minor
Nogal	AM	*Juglans* spp.
Nongo	AF	*Albizia* spp.
N'tola	AF	*Gossweilerodendron balsamiferum*
Nyankom	AF	*Tarrietia utilis* and *T. densiflora*
Nyatoh	AS	*Palaquium* spp. and *Payena* spp.
Nzingu	AF	*Mitragyna ciliata*
Norfolk Island pine	AS	*Araucaria* spp.
Oak	AM	*Quercus* spp.
Oak, European	EU	*Quercus robur, Q. petraea*
Oak, Japanese	AS	*Quercus magnolica* var. *grosseserrata*
Oak, Persian	AF	*Quercus castaneaefolia*
Obeche	AF	*Triplochiton scleroxylon*
Obobo	AF	*Guarea cedrata* and *G. thompsonii*
Ocote colorado	AM	*Pinus patula*
Ocote pine	AM	*Pinus oocarpa* and *Pinus hartwegii*
Odoko	AF	*Scottellia coriacea*
Ofram	AF	*Terminalia superba*
Ofun	AF	*Mansonia altissima*
Ogea	AF	*Daniellia ogea* and *D. thurifera*
Ogiovu	AF	*Antiaris* spp.
Ohia	AS	*Metrosideros collina* subsp. *polymorpha*
Okan	AF	*Cylicodiscus gabunensis*
Okoko	AF	*Sterculia oblonga*
Okoumé	AF	*Aucoumea klaineana*
Okwen	AF	*Brachystegia* spp.
Olive, East African	AF	*Olea hochstetteri*
Olivier, white	AM	*Terminalia amazonia*
Olivillo	AM	*Aextoxicon punctatum*
Omu	AF	*Entandrophragma candollei*
Opepe	AF	*Nauclea diderrichii*
Orey	AM	*Campnosperma panamensis*
Orientalwood	AS	*Endiandra palmerstonii*
Oro	AF	*Antiaris* spp.
Osan	AF	*Aningeria* spp.
Otie	AF	*Pycnanthus angolensis*
Otutu	AF	*Nesogordonia papaverifera*
Owewe	AF	*Combretodendron macrocarpum*
Oyamel	AM	*Abies religiosa*
Oziya	AF	*Daniellia ogea* and *D. thurifera*
Padauk, African	AF	*Pterocarpus soyauxii*
Padauk, Andaman	AS	*Pterocarpus dalbergioides*
Padauk, Burma	AS	*Pterocarpus macrocarpus*
Palo de cera	AM	*Astronium graveolens*
Palosapis	AS	*Anisoptera costata* and *A. thurifera*
Panga Panga	AF	*Millettia* spp.
Pará rubbertree	AM	*Hevea brasiliensis*
Parana-pine	AM	*Araucaria angustifolia*
Partridgewood	AM	*Caesalpinia* spp., SYN. *Libidibia* spp.

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Pau marfim	AM	*Balfourodendron riedelianum*
Paulownia	AS	*Paulownia tomentosa*
Pear, European	EU	*Pyrus communis*
Penak	AS	*Balanocarpus* spp.
Peroba de campos	AM	*Paratecoma peroba*
Peroba rosa	AM	*Aspidosperma* spp. (peroba group)
Peroba, white	AM	*Paratecoma peroba*
Peterebi	AM	*Cordia* spp. (soft-wooded, light-colored alliodora group)
Phdiek	AS	*Anisoptera* spp.
Pillarwood	AF	*Cassipourea malosana*
Pilularis	AS	*Eucalyptus pilularis*
Pine, Austrian	EU	*Pinus nigra*
Pine, Caribbean	AM	*Pinus caribaea*
Pine, Corsican	EU	*Pinus nigra* var. *maritima*
Pine, maritime	EU	*Pinus pinaster*
Pine, ocote	AM	*Pinus oocarpa*
Pine, patula	AM	*Pinus patula*
Pine, radiata	AS	*Pinus radiata*
Pine, Scots	EU	*Pinus sylvestris*
Pino blanco	AM	*Pinus montezumae* and *P. pseudostrobus*
Pino chino	AM	*Pinus leiophylla*
Pino de seis hojas	AM	*Pinus durangensis*
Pino hortiquillo	AM	*Pinus lawsonii*
Pino lacio amarillo	AM	*Pinus douglasiana*
Planchonella	AS	*Planchonella* spp.
Plane, London	EU	*Platamus hybrida*
Podo	AF	*Podocarpus* spp.
Podocarp	AM	*Podocarpus* spp.
Poon	AS	*Calophyllum* spp.
Poplar, European black	EU	*Populus nigra*
Poplar, Italian black	EU	*Populus canadensis* var. *serotina*
Poplar, white	EU	*Populus alba*
Porcupine wood	AM	*Centrolobium* spp.
Possumwood	AM	*Hura crepitans*
Pradoo	AS	*Pterocarpus macrocarpus*
Primavera	AM	*Cybistax donnell-smithii*, SYN. *Tabebuia donnell-smithii*
Pterygota	AF	*Pterygota* spp.
Pulai	AS	*Alstonia* spp.
Punah	AS	*Tetramerista glabra*
Purpleheart	AM	*Peltogyne* spp.
Putat paya	AS	*Planchonia* spp.
Pyin	AS	*Xylia xylocarpa*
Pyinkado	AS	*Xylia xylocarpa*
Quaruba	AM	*Vochysia* spp.
Quebracho	AM	*Schinopsis* spp.
Queensland-maple	AS	*Flindersia* spp.
Queensland-walnut	AS	*Endiandra palmerstonii*
Ramin	AS	*Gonystylus* spp.
Ranggu	AS	*Koordersiodendron pinnatum*
Rauli	AM	*Nothofagus procera*
Red lauan	AS	*Shorea* spp. (dark red meranti—red lauan group)
Red louro	AM	*Ocotea rubra*
Red seraya	AS	*Shorea* spp. (light red meranti—light red lauan group)
Red-cedar, Australian	AS	*Cedrela* spp.

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Redwood, European	EU	*Pinus sylvestris*
Resak	AS	*Vatica* sp.
Rhodesian-teak	AF	*Baikiaea plurijuga*
Rimu	AS	*Dacrydium* spp.
Roble	AM	*Quercus* spp.
Roble	AM	*Tabebuia* spp. (roble group)
Rode Kabbes	AM	*Andira* spp.
Rong leang	AS	*Tristania* spp.
Rosewood, Brazilian	AM	*Dalbergia nigra*
Rosewood, Honduras	AM	*Dalbergia stevensonii*
Rosewood, Indian	AS	*Dalbergia latifolia*
Rubbertree	AM	*Hevea brasiliensis*
Sabicú	AM	*Lysiloma* spp.
Sabino	AM	*Taxodium mucronatum*
Sajo	AM	*Campnosperma panamensis*
Saligna	AS	*Eucalyptus saligna*
Samba	AF	*Triplochiton scleroxylon*
San	AS	*Dillenia* spp.
Sande	AM	*Brosimum* spp. (utile group)
Santa Maria	AM	*Calophyllum brasiliense*
Sapele	AF	*Entandrophragma cylindricum*
Satinwood, East African	AF	*Fagara macrophylla*
Satinwood, East Indian	AS	*Chloroxylon swietenia*
Sawara	AS	*Dhamaecyparis pisifera*
Sempilor	AS	*Dacrydium elatum*
Semul	AS	*Bombax insigne*
Sen	AS	*Kalopanax pictus*
Senegal mahogany	AF	*Khaya grandifoliola* and *K. senegalensis*
Sepetir	AS	*Pseudosindora palustris* and *Sindora* spp.
Seraya, dark red	AS	*Shorea* spp. (dark red meranti—red lauan group)
Seraya, red	AS	*Shorea* spp. (light red meranti—light red lauan group)
Seraya, white	AS	*Parashorea* spp.
Seraya, yellow	AS	*Shorea* spp. (yellow meranti group)
Serrette	AM	*Byrsonima coriacea* var. *spicata* and *Byrsonima* spp.
Serungan	AS	*Cratoxylon arborescens*
Shinanoki	AS	*Tilia japonica*
Shisham	AS	*Dalbergia latifolia*
Silk-cotton-tree	AF	*Ceiba pentandra*
Silk-cotton-tree	AM	*Ceiba pentandra*
Silkwood	AS	*Flindersia brayleyana*
She-oak	AS	*Casuarina* spp.
Silky-oak	AS	*Cardwellia sublimis*
Silky-oak	AS	*Grevillea robusta*
Silver-beech	AS	*Nothofagus* spp.
Simpoh	AS	*Dillenia* spp.
Sipo	AF	*Entandrophragma utile*
Sougué	AF	*Parinari excelsa*
Spanish-cedar	AM	*Cedrela* spp.
Spondias	AS	*Spondias* spp.
Spotted gum	AS	*Eucalyptus maculata*
Spruce, European	EU	*Picea abies*
Srol	AS	*Dacrydium elatum*
Srol kraham	AS	*Dacrydium elatum*
Sterculia	AM	*Sterculia pruriens*
Sterculia, brown	AF	*Sterculia rhinopetala*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU)

Trade name	Region of origin[1]	Botanical name
Sterculia, yellow	AF	*Sterculia oblonga*
Subaha	AF	*Mitragyna ciliata*
Sucupira	AM	*Bowdichia* spp.
Sucupira	AM	*Diptotropis purpurea*
Sugi	AS	*Crytomeria japonica*
Sycamore, European	EU	*Acer pseudoplatanus*
Takalis	AS	*Pentace* spp.
Tallow-wood	AS	*Eucalyptus microcorys*
Tamaka	AS	*Azadrachta* spp.
Tangare	AM	*Carapa guianensis*
Tangile	AS	*Shorea* spp. (dark red meranti—red lauan group)
Tasmanian-oak	AS	*Eucalyptus delegatensis, E. obliqua, E. regnans*
Tasmanian-Myrtle	AS	*Nothofagus* spp.
Tatabu	AM	*Diplotropis purpurea*
Taun	AS	*Pometia pinnata*
Tawa	AS	*Beilschmiedia tawa*
Tchitola	AF	*Oxystigma oxyphyllum*
Teak	AS	*Tectona grandis*
Teraling	AS	*Tarrietia* spp.
Terminalia	AS	*Terminalia* spp.
Thingan	AS	*Hopea* spp.
Thitka	AS	*Pentace* spp.
Thitmin	AS	*Podocarpus* spp.
Tiama	AF	*Entandrophragma angolense*
Tigerwood	AF	*Lovoa trichilioides*
Touchinoki	AS	*Aesculus turbinata*
Tola	AF	*Gossweilerodendron balsamiferum*
Tola mafuta	AF	*Oxystigma oxyphyllum*
Tolara	AS	*Podocarpus* spp.
Toon	AS	*Cedrela* spp.
Totara	AS	*Podocarpus* spp.
Trumpet-wood	AM	*Cecropia peltata*
Tsuga	AS	*Tsuga sieboldii*
Turpentine	AS	*Syncarpia glomulifera*, SYN. *S. laurifolia*
Tuyot	AS	*Tetramerista glabra*
T'zalam	AM	*Lysiloma* spp.
Ulin	AS	*Eusideroxylon zwageri*
Ulmo	AM	*Eucryphia cordifolia*
Urat mata	AS	*Parashorea* spp.
Utile	AF	*Entandrophragma utile*
Ven-ven	AS	*Anisoptera* spp.
Vermillion wood	AS	*Pterocarpus dalbergioides*
Violetwood	AM	*Peltogyne* spp.
Vinhatico	AM	*Plathymenia reticulata*
"Virola"	AM	*Dialyanthera* spp.
Vitex	AF	*Vitex doniana*
Volador	AM	*Aspidosperma* spp. (araracanga group)
Wacapou	AM	*Vouacapoua americana*
Walele	AF	*Pycnanthus angolensis*
Wallaba	AM	*Eperua* spp.
Walnut, European	EU	*Juglans regia*
Walnut, Queensland-	AS	*Endiandra palmerstonii*

[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Trade name	Region of origin[1]	Botanical name
Walnut, tropical	AM	*Juglans* spp.
Wamara	AM	*Swartzia* spp.
Wattle, black	AS	*Acacia mollissima*, SYN. *A. mearnsii*
Wawa	AF	*Triplochiton scleroxylon*
Wenge	AF	*Millettia* spp.
West African cordia	AF	*Cordia millenii* and *C. platythyrsa*
White bombay	AS	*Terminalia procera*
White cheesewood	AS	*Alstonia* spp.
White chuglam	AS	*Terminalia bialata*
White cypress-pine	AS	*Callitris glauca*, SYN. *C. columellaris*
White lauan	AS	*Pentacme contorta*
White meranti	AS	*Shorea* spp. (white meranti group)
White olivier	AM	*Terminalia amazonia*
White peroba	AM	*Paratacoma peroba*
White seraya	AS	*Parashorea* spp.
White siris	AS	*Ailanthus* spp.
White star apple	AF	*Chrysophyllum albidum*
Willow, European	EU	*Salix* spp.
Yahu	AM	*Sterculia pruriens*
Yang	AS	*Dipterocarpus* spp.
Yellow meranti	AS	*Shorea* spp. (yellow meranti group)
Yellow seraya	AS	*Shorea* spp. (yellow meranti group)
Yellow sterculia	AF	*Sterculia oblonga*
Yemeri	AM	*Vochysia* spp.
Yew, European	EU	*Taxus baccata*
Yezomatsu	AS	*Picea jezoensis*
Yon	AS	*Anogeissus acuminata*
Zambesi-redwood	AF	*Baikiaea plurijuga*
Zebrano	AF	*Microberlinia brazzavillensis*
Zebrawood	AF	*Microberlinia brazzavillensis*

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[1] Latin America (AM); Africa (AF); Asia and Oceania (AS); Europe (EU).

Appendix E
Assembled British Standard Kiln-Drying Schedules

British schedules have been listed for many of the woods not native to the United States and Canada (Sections III-VI). Following is a listing of the assembled British Princes Risborough Laboratory schedules as published in Pratt, G. H., *Timber Drying Manual*, 1974, Building Research Establishment, Department of the Environment, HMSO, London.

Moisture Content	Temperature °C		Relative humidity (approximate)	Temperature °F	
	Dry-bulb	Wet-bulb		Dry-bulb	Wet-bulb
-Percent-			*- -Percent- -*		
			SCHEDULE A		
Green	35	30.5	70	95	87
60	35	28.5	60	95	83
40	40	31	50	104	88
30	45	32.5	40	113	91
20	50	35	35	122	95
15	60	40.5	30	140	105
			SCHEDULE B		
Green	40	37.5	85	104	100
40	40	36.5	80	104	98
30	45	40.5	75	113	105
25	50	44	70	122	111
20	55	46	60	131	115
15	60	47.5	50	140	118
			SCHEDULE C		
Green	40	37.5	85	104	100
60	40	36.5	80	104	98
40	45	40.5	75	113	105
35	45	39.5	70	113	103
30	45	38.5	65	113	101
25	50	42	60	122	107
20	60	47.5	50	140	118
15	65	48.5	40	149	119
			SCHEDULE D		
Green	40	37.5	85	104	100
60	40	36.5	80	104	98
40	40	35	70	104	95
35	45	37.5	60	113	99
30	45	35	50	113	95
25	50	36.5	40	122	98
20	60	40.5	30	140	105
15	65	44	30	149	111
			SCHEDULE E		
Green	50	47	85	122	117
60	50	46	80	122	115
40	50	45	75	122	113
30	55	47.5	65	131	118
25	60	49	55	140	121
20	70	54.5	45	158	130
15	75	57.5	40	167	136

Moisture Content	Temperature °C		Relative humidity (approximate)	Temperature °F	
	Dry-bulb	Wet-bulb		Dry-bulb	Wet-bulb
-Percent-			*- -Percent- -*		
			SCHEDULE F		
Green	50	45	75	122	113
60	50	44	70	122	111
40	50	42	60	122	107
30	55	43.5	50	131	110
25	60	46	45	140	115
20	70	52.5	40	158	127
15	75	57.5	40	167	136
			SCHEDULE G		
Green	50	47	85	122	117
60	50	46	80	122	115
40	55	51	80	131	124
30	60	54.5	75	140	130
25	70	62.5	70	158	145
20	75	62.5	55	167	145
15	80	61	40	176	141
			SCHEDULE H		
Green	60	55.5	80	140	132
50	60	54.5	75	140	130
40	60	52	65	140	126
30	65	53.5	55	149	129
20	75	57.5	40	167	136
			SCHEDULE J		
Green	60	53	70	140	128
50	60	50.5	60	140	123
40	60	47.5	50	140	118
30	65	48.5	40	149	119
20	75	52	30	167	126
			SCHEDULE K		
Green	70	65	80	158	149
50	75	67	70	167	153
30	80	68.5	60	176	155
20	90	69	40	194	156
			SCHEDULE L		
Green	80	72	70	176	161
40	90	69	40	194	156
			SCHEDULE M		
Green	90	81	70	194	178
50	95	78	50	203	172

Appendix F
References and Related Literature

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